

NSW INJURY PROFILE

A review of injury data (1995-1999) and identification of areas requiring further study

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ACRONYMS

ABS	Australian Bureau of Statistics
AUS	Australia
Ecode	External Cause of Injury Code
ICD-10	International Statistical Classification of Diseases and Related Health Problems, 10 th Revision,
ICD-10-AM	International Statistical Classification of Diseases and Related Health Problems, 10 th Revision, Australian Modification
ICD-9	International Classification of Disease, 9 th Revision
ICD-9-CM	International Classification of Disease, 9 th Revision with Clinical Modification
IRMRC	NSW Injury Risk Management Research Centre
ISC	Inpatient Statistics Collection
NCCH	National Centre for Classification in Health
Ncode	Nature of medical condition or injury
NSW	New South Wales
SLA	Statistical Local Area
WHO	World Health Organisation

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EXECUTIVE SUMMARY

Injury is one of the leading causes of morbidity and mortality for all age groups and is the leading cause of post-infancy death up until forty-four years of age. Each year an estimated 2,500 New South Wales residents die as a result of an injury and more than 178,000 are hospitalised, whilst many more seek treatment from medical and other health professionals outside of institutional settings. In 1999, injuries were the sixth leading cause of death and the fourth leading cause of hospitalisation in NSW. The high incidence of injury-related events makes injury prevention a public health priority.

This profile is intended to provide insight into the patterns and incidence of injury in NSW using the most up-to-date information available. The NSW Injury Risk Management Research Centre (IRMRC) uses the profile as the foundation for a targeted research plan to identify areas of concern and carry out investigations into potential strategies to improve the safety of the population of NSW.

Injuries arise from a wide range of causal factors - the 'mechanism of injury' - and in this profile, analysis concentrates on six principal unintentional mechanisms of injury. These cover drowning, falls, a composite category of fire/burns, motor vehicle transport, poisoning and complications of care as well as the two intentional categories of injury - interpersonal violence and suicide. The profile presents the trends in annual death and hospitalisation rates over time, age-specific death and hospitalisation rates and information regarding subcategories for each injury mechanism, for example 'pedestrian injured by motor vehicle', or the identification of the method of injury for intentional injuries.

The injury profile shows that the leading causes of death and hospitalisation without death are the result of different mechanisms of injury and that there is significant variation in the mechanism between the sexes as well as between different age groups. Overall, suicide by whatever mechanism is the principal cause of death in NSW, whilst complications of care and falls are by far the most common cause of hospitalisation. Children under the age of five are at greater risk of drowning or near drowning, as well as hospitalisation for poisoning and fire/burn-related injuries, than any other age group. Hospitalisation rates in the young (under fifteen year olds) for fall-related injuries are also relatively high, second only to the incidence amongst those of retirement age. Those over seventy years are particularly vulnerable and have the highest death and hospitalisation rates for both falls and complications of care. Males accounted for nearly seventy-five percent of all injury-related deaths, with higher counts and rates for all types of injury-related deaths. Females, on the other hand, were hospitalised more often than males for falls and attempted suicide.

In the following four pages, the key findings relating to each of the eight injury mechanisms are presented in point form. A more detailed description and exploration of the wider circumstances for each of the mechanisms can be found in the dedicated chapters.

KEY POINTS

All injury

- In 1999, injury and poisonings were the sixth leading cause of death and the fourth leading cause of hospitalisation in NSW.
- In 1999, injury and poisonings were the leading cause of death among people aged 1-44, as well as the leading cause of hospitalisation among people aged 10-14.
- Seventy percent of all injury deaths and 56 percent of all injury hospitalisations between 1995 and 1999 were male.
- Death rates for males were higher than females for all major injury mechanisms, although there were some notable subgroups which did not show this pattern, including hospitalisations for falls on the same level and falls on stairs, medical misadventures and therapeutic use of drugs.
- Suicide was the leading cause of injury mortality but not morbidity in NSW from 1995 to 1999, accounting for 33 percent of the deaths.
- Complications of care were the leading cause of injury morbidity in NSW from 1995 to 1999, accounting for 32 percent of the hospitalisations, although mortality rates were the lowest of the eight categories examined in this report.

Suicide

- Across all age groups, people aged 20-39 years old were at greatest risk of dying from suicide and for being hospitalised for an attempted suicide between 1995 and 1999.
- Suffocation (hanging) (39%) and poisoning (34%) were the two most common methods of suicide between 1995 and 1999, followed by firearms (11%). Males accounted for 84 percent of all suicides by suffocation and 73 percent of all suicide poisonings.
- Poisoning was the most common method used in suicide attempts that resulted in hospitalisation, accounting for 83 percent of cases. Females accounted for 61 percent of all suicide attempts by poisoning.

Motor Vehicle Transport

- People aged 15-24 years were at greatest risk of dying and being hospitalised as a result of motor vehicle transport-related injuries between 1995 and 1999
- Between 1995 and 1999 motor vehicles drivers , accounted for 40 percent of all motor vehicle deaths. Drivers were also hospitalised more often (29%) than other motor vehicle accident victims. Males accounted for 75 percent of all drivers who died of a motor vehicle transport injury and 61 percent of all drivers hospitalised

Falls

- People aged 70 years and older were at greatest risk of dying and being hospitalised as a result of a fall-related injury between 1995 and 1999
- Falling from one level to another (14%) was the most common types of fall resulting in death between 1995 and 1999, with males accounting for 68 percent of these deaths.
- Falls on the same level after tripping or being pushed (34%) were the most common type of fall resulting in hospitalisation and females accounted for 62 percent of these cases.

Poisoning

- Across all age groups, people aged 25-44 were at greatest risk of dying as a result of a poisoning between 1995 and 1999, whereas children under age 5 were at greatest risk of being hospitalised for a poisoning
- Narcotics and hallucinogens were the most common substances causing poisonings deaths between 1995 and 1999. Males accounted for 84 percent of all deaths caused by narcotics poisoning.
- For hospitalised cases where the substance used was known, the most common cause was antidepressants, barbiturates and tranquilisers and females accounted for 55 percent of all cases for this group of substances.
- Males were much more likely to die by poisoning than females, but hospitalisation for poisoning showed very little difference between genders.

Interpersonal Violence

- People aged 25-29 were at greatest risk of dying from an interpersonal violence (IPV) injury between 1995 and 1999 and people aged 20-24 were at greatest risk of being hospitalised.
- Sharp/blunt objects used to cut and/or stab (43 %) were the most common methods of IPV between 1995 and 1999. Males accounted for 72 percent of all IPV deaths caused by sharp/blunt objects
- Approximately two-thirds of hospitalisations for IPV were due to being struck by or against another person or object and males also accounted for 74 percent of these cases.

Drowning

- Across all age groups, people under age five were at greatest risk of dying as a result of a drowning and being hospitalised as a result of a near drowning between 1995 and 1999
- The majority of drownings and near-drownings occurred in either natural water or swimming pools.
- Males accounted for 75 percent or more of all drownings and near-drownings for all locations except bathtubs where there was little difference between genders.

Fire/Burns

- People aged 70 years and older were at greatest risk of dying as a result of an injury caused by a fire or hot object between 1995 and 1999, whereas people under age five years were at greatest risk of being hospitalised.
- Fires in buildings caused the majority of fires/burns deaths from 1995 to 1999 and 61 percent were male.
- Burns from substances or objects caused the majority of fire/burns hospitalisations and males accounted for 59 percent of these cases.

Complications of Care

- People aged 65 years and older were at greatest risk of dying as a result of an injury caused by an complications of care between 1995 and 1999. Residents aged 50 years and older were at greatest risk of being hospitalised as a result of an injury caused by a complication of care.
- Abnormal reaction of the patient or a complication caused the majority of complication of care category injuries(53 %) followed by medical misadventure (26%).
- The majority of complication of care hospitalisations were also due to abnormal reactions or complications (77 %). A very small percentage was due to medical misadventure (2%), although with over 6,000 cases, the overall numbers of cases were not insignificant.
- Males and females were roughly equivalent in the number of complication of care deaths for all types of events. For hospitalisations, females had slightly higher numbers of events due to therapeutic use of drugs and to medical misadventures.

1.0 INTRODUCTION

1.1 Purpose

The purpose of this report is to present a profile of injury morbidity and mortality in New South Wales using currently available data. These findings will be used to (i) update current injury statistics and (ii) identify target areas for further research.

1.2 Scope

This report presents the demographic analysis of injury morbidity and mortality occurring in New South Wales between 1986 and 1999 for the major injury mechanisms for intentional (IPV and suicide) and unintentional injury. Background information on the nature of the problem, as well as recommendations for improvements in data collection and directions for future research are also included.

1.3 Terms of Reference

This profile of injury morbidity and mortality in New South Wales was undertaken as part of the scope of work of the NSW Injury Risk Management Research Centre (IRMRC) to deliver high quality injury incidence and risk exposure data.

1.4 Structure of Report

The following describes the structure of this report:

- Section 1- introductory information on the purpose, scope, terms of reference and structure of the report;
- Section 2- background information on the nature of the injury problem, injury data coding issues and previous reports;
- Section 3- methodology information about the definitions and data sources used, as well as the specific analyses done;
- Section 4- overview of the problem
- Section 5- results of the analyses for suicide;
- Section 6- results of the analyses for motor vehicle;
- Section 7- results of the analyses for falls;
- Section 8- results of the analyses for poisoning;
- Section 9- results of the analyses for interpersonal violence;
- Section 10- results of the analyses for drowning;
- Section 11- results of the analyses for fire/burns;
- Section 12- results of the analyses for complications of care;
- Section 13- results of analysis by age groups
- Section 14- discussion of the results;
- Section 15- contains conclusions drawn from the results;
- Section 16- recommendations to improve drowning and near-drowning analysis;
- Section 17- bibliography of sources
- Appendix 1- list of Ecodes by mechanism used;
- Appendix 2- list of disease and injury categories;
- Appendix 3- List of Ecodes by mechanism.

2.0 BACKGROUND

2.1 Nature of Problem

Injury is a recognised public health problem. Understanding the problem of injury starts with understanding the causes and circumstances in which injury occurs. The aim of this document is to use available information on injury-related deaths and hospitalisations to examine the injury problem in NSW and to assist in directing further work to reduce the incidence of injury.

2.2 Overview of Injury-Related Deaths and Hospitalisations in Australia

2.2.1 Deaths due to Injury

Between 1979 and 1998, more than 156,000 Australians have died as a result of an injury, an average of 7,801 deaths per year. Approximately 21 percent of these cases were between 20 and 29 years of age and 23 percent were 65 years of age and older. Male Australians accounted for more than 70 percent of injury deaths between 1979 and 1999.

The following table rank Australia's states and territories by the number of deaths in 1998 resulting from injuries.

Table 1. Number of Injury Deaths: All States and Territories, 1998*

	Number	Rate/100,000
NSW	2,660	40.6
VIC	1,700	35.0
QLD	1,573	45.0
WA	874	48.1
SA	651	41.6
TAS	201	40.6
NT	181	107.0
ACT	106	36.3
AUST	7,945	41.3

* Data obtained from the National Injury Surveillance Unit. Rates have been age-adjusted using the 1991 Australian census population

2.2.2 Hospitalisations due to Injury

Between 1994 and 1997, more than 1.5 million Australians have been hospitalised as a result of an injury, an average of 388,335 hospitalisations per year. Approximately 17 percent of these cases were between 20 and 29 years of age and 23 percent were 65 years of age and older. Male Australians accounted for more than 58 percent of injury hospitalisations between 1994 and 1997.

The following table rank Australia's states and territories by the number of hospitalisations in 1997 resulting from injuries.

Table 2. Number of Injury Hospitalisations: All States and Territories, 1997*

	Number	Rate/100,000
NSW	128,994	2,003.1
VIC	88,510	1,877.2
QLD	87,648	2,584.4
WA	39,220	2,203.6
SA	34,966	2,312.4
TAS	9,392	1,961.2
ACT	4,456	1,568.2
NT	4,334	2,421.1
AUST	404,028	2,159.5

* Data obtained from the National Injury Surveillance Unit. Rates have been age-adjusted using the 1991 Australian census population

As illustrated by the two tables, deaths and hospitalisations to New South Wales residents accounted for 33 and 32 percent, respectively, of all injuries recorded nationally. This is to be expected as NSW has a larger population than other states and territories, and the death and hospitalisation rates similar to Australia overall.

2.3 Previous report

This report updates the *NSW Injury Profile: A review of available injury data* produced in December 2000.

3.0 METHODS

3.1 Definitions

The following three sections present the case definitions of injury mechanism, mortality and morbidity used for the purposes of this report.

3.1.1 Injury Mechanism

Injuries are usually classified in terms of their cause and intent. An injury mechanism (represented by an Ecode) is defined as the external object or circumstance that caused the injury, such as a motor vehicle accident. The intent can be accidental, intentional or undetermined. Intentional injuries are grouped together on the basis that they were either self-inflicted or inflicted by another person or persons.

Eight major injury mechanisms are analysed for this report- drowning, falls, fire/burns, interpersonal violence, motor vehicle crashes, poisonings, suicide and complications of care. The burn subcategory of the fire/burn mechanism group refers to injuries received from hot objects or substances and is separate from burns received in a fire. All intentionally self-inflicted injuries were grouped into the suicide injury mechanism and all injuries intentionally inflicted by another were grouped into the interpersonal violence mechanism. The ICD-9, ICD-9-AM, ICD-10, and ICD-10-AM Ecodes for the injury mechanisms analysed in this report are listed in Appendix 1.

3.1.2 Injury Mortality

Injury mortality is defined in terms of a single underlying cause of death. For this analysis, cases were included where the underlying cause of death was determined to be an external cause of injury (injury mechanism or Ecode) and the state of residence was New South Wales. In some cases, the identified injury mechanism was a complication of care and was linked to a nature of injury code or Ncode that is not injury-related. In these cases, the patient was probably being treated at hospital for a medical condition (e.g., heart attack) and suffered a complication of care that resulted in death

3.1.3 Injury Morbidity

Hospital separations were identified as cases if:

- a diagnosis code (N-code) was injury/ poisoning. This included ICD9-AM N-codes 800-999, ICD10- AM codes S00-T99. Up to 21 ICD10-AM, ICD9-AM codes were included in total.
- the first mechanism/external cause of injury was assigned (see appendix 1 for corresponding codes).

Hospital separations were included only where they did not result in death and where the state of residence was New South Wales. In some cases, the identified injury mechanism may be a complication of care which was linked to a N code/ primary diagnosis that is not injury-related (e.g. heart attack).

3.2 Data Sources

Two types of information were used in this report- death and in-patient (hospitalisation) data. The death record data come from information written on a death certificate by a coroner and the hospitalisation record data (usually) come from notes written in a patient's medical chart. Death data contains coded information that refers to the cause of death and hospitalisation data contains coded information that refers to the principle reason for hospitalisation.

3.2.1 Mortality Data

Data was obtained for NSW for 1986-1998 from the Australian Bureau of Statistics (ABS) for all Ecoded death records. Records for these years were coded using ICD-9. All death records for 1999 were also obtained. These data were coded using ICD-10.

3.2.2 Morbidity Data

All in-patient (hospitalisation) records were obtained from the NSW Department of Health for fiscal years 1991/1992 to 1999/2000. Data from fiscal years 1991/1992 to 1997/1998 were coded using ICD-9-CM and data from fiscal years 1998/1999 to 1999/2000 were coded using ICD-10-AM.

3.3 Injury Data Coding Issues

The data used in this report span a change in the coding scheme used to classify injury and disease. This coding scheme is referred to as the International Classification of Disease (ICD) and was initially formalised in 1893. Since 1948, it has been revised in its entirety approximately every ten years by the World Health Organisation (WHO). The two ICD revisions covered in this report are the ICD 9th Revision (ICD-9) and the ICD 10th Revision (ICD-10).

In ICD-10 alphanumeric codes have been introduced (e.g., A37, R01) to represent an injury or disease, superseding the numeric codes (e.g., 125, 802) used in ICD-9. The external cause of injury codes have been included within the alphanumeric structure of ICD-10, as opposed to the separate scheme in ICD-9 (i.e., use of E800-E999).

When a person dies or is hospitalised as a result of an injury, a consequence or 'nature of injury' code is assigned using the death certificate and/or notes in the patient's record. In ICD-9, there was a specific Ncode for each injury (i.e., 800 -999) and the codes were organized by the type of injury (e.g., fracture, dislocation). In ICD-10, a unique Ncode still exists, but the codes are organized by the location of the body part injured (e.g., head) instead of the type of injury.

For each injury Ncode and a few other disease Ncodes, an external cause of injury code (Ecode) must also be supplied to identify the cause or mechanism of the injury (e.g., drowning, fall, burn). Two major changes regarding Ecodes occurred between ICD-9 and ICD-10. In ICD-9, the person injured in a transport accident (e.g., motor vehicle) was secondary to the type of accident (e.g., collision with other motor vehicle); however, in ICD-10, the coding structure focuses on the person injured first and then the type of accident. The second change in ICD-10 was the introduction of a code for the activity at the time of the injury.

Specific rules for coding injury morbidity and mortality are part of each ICD revision; however, the Australia National Centre for Classification in Health (NCCH) made additional changes to ICD-9 and ICD-10 to produce special Australia versions (i.e., ICD-9-CM, ICD-

10-AM) for coding morbidity. These Australian versions are used to code all injury morbidity cases in Australia (e.g., hospitalisations), while all injury mortality cases are coded using the guidelines established in the original WHO ICD versions.

3.4 Other Injury Data Issues

There are a number of issues arising from analysis of death and hospital record data to understand patterns of injury mortality and morbidity. First, to be useful, the injury coding must be reliable and valid. Evaluation studies of the quality of ICD9 diagnosis and mechanism codes reported in hospital discharge data shows that they are a reliable source of information for injury surveillance. A Victorian hospital coding validation study (MacIntyre, Ackland and Chandraraj, 1997) found low percentages of coding error, with only six per cent of principal diagnoses to be in error at the three-character level- (coded to principal diagnoses other than injuries) and 22 per cent at any level. Only 16 per cent of external cause codes were found to contain an error. These findings were supported by a US study (Lemier, Cummings and West, 2001) which examined a sample of 1260 computerized records and found 13% of external cause/mechanism codes contained an error.

A second injury data issue is that in the hospitalisation data set, there may be more than one record for the same individual. For example, a person may be hospitalised for a heart attack in the beginning of the year and have the misfortune to be seriously injured in a motor vehicle transport crash later in the year. The same person may need to be readmitted after the initial hospitalisation stay to receive further treatment for the injuries suffered in the crash. In this example, the same person would have at least three hospitalisation records in one year of hospitalisation data.

Unfortunately, there is no way to identify multiple records for an individual in the hospitalisation data used, so each record was considered to be unique for purposes of this profile. For injury mechanisms that are affected by this decision, frequencies and rates may be slightly elevated.

A third injury data issue involves the absence of an Ecode for 2,134 injury morbidity cases where a nature of injury code was assigned as the primary diagnosis. These cases were hospitalised between January 1995 and June 1998 and were coded under the ICD-9 coding scheme. These cases accounted for only 0.2 percent of all hospitalised cases analysed between 1995 and 1999 and are reported as having an unknown injury mechanism.

3.5 Analysis

Each of the following sections briefly describes the types of analysis done using the death and hospitalisation data. Three types of epidemiological analyses were done:

- Frequency of event;
- Age-specific rate; and
- Age adjusted rates.

The frequency of an event is calculated by counting the number of times the event occurs in a given time period (e.g., number of drownings in 1992). Frequencies are often subdivided into categories (e.g., age and gender groups) so that comparisons between the different categories are possible.

An age-specific rate is calculated by dividing the frequency of an event for a particular age group (e.g., under five) by the total population in that age group that could have experienced the event in that same time frame. Once this is done, the resulting value is multiplied by 100,000 so that the number of events per that age group is given per 100,000 population. For example, one under five years old drowned in Place X in 1992. The total population of under five year old children in Place X in 1992 was 4000. The resulting age-specific rate for drowning in under five year old children in Place X in 1992 is 25/100,000 population.

An age-adjusted rate is the sum of individually standardized age-specific rates. Each age-specific rate is multiplied by a standard population weight for that age group. The standard population weight is calculated by dividing the frequency in an age group by the total population for the year chosen to represent the standard year. The standard population currently being used is the 1991 Australia population census.

Once all of the age groups have been weighted, the new age-specific values are added together to produce one age-adjusted rate. This method of age-adjustment is called direct standardization. When the same age-specific population weights are used, standardization allows for comparison between different states and territories that may have different age structures.

The time period measured can be any length of time. In some cases, it is beneficial to group at least five years of data together. This is done for two reasons:

- (i) So enough events can be measured; and
- (ii) 'Typical' data is captured, minimising the influence of fluctuations from year to year. For the purposes of this report, age-adjusted rates were calculated both annually and for the block of years from 1995 to 1999. Age-specific rates and frequencies were calculated using data for the block of years from 1995 to 1999

All of the following analyses were done for both morbidity and mortality data.

3.5.1 Top Ten Causes of Death and Hospitalisation

All death and hospitalisation cases occurring in 1999 were grouped into disease and injury categories, using the cause of death and principle diagnosis, respectively. The disease categories were based on the chapter headings in the ICD-10 and ICD-10-AM coding manuals. For injury deaths, cases were grouped by Ecode and for injury hospitalisations, cases were grouped by Ncode. The top ten causes of death and hospitalisation tables were generated by ranking the frequencies of the disease and injury categories by age group.

The following age groups were used to present frequencies for the top ten leading causes of death and hospitalisation tables under 1, 1-4, 5-9, 10-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65+. An under one year age group was analysed separately from the rest of the under five age group because children under one are likely to exhibit different patterns of injury as compared to the rest of the under five age group.

The list of disease and injury categories used is presented in Appendix 2.

3.5.2 Top Ten Causes of Injury Death and Hospitalisation

All injury death and hospitalisation cases occurring from 1995 to 1999 were grouped into injury mechanism categories, using the cause of death and principle Ecode, respectively. The injury mechanism categories were based on a recommended framework for Ecode groupings developed by the Centers for Disease Control in the United States. The top ten causes of injury death and hospitalisation tables were generated by ranking the frequencies of the injury mechanism categories by age group.

The following age groups were used to present frequencies for the top ten leading causes of injury death and hospitalisation tables- under 1, 1-4, 5-9, 10-14, 15-24, 25-34, 35-44, 45-54, 55-64, 65+. An under one year age group was analysed separately from the rest of the under five age group because children under one are likely to exhibit different patterns of injury as compared to the rest of the under five age group:

The list of injury mechanisms categories used is presented in Appendix 3.

3.5.3 Time Trends

Age-adjusted rates for each injury mechanism were calculated annually from 1986 to 1999 for deaths and 1992 to 1999 for hospitalisations and presented as a time trend. For each rate, 95% confidence intervals were calculated in order to examine the statistical significance of changes in rates over the time period.

3.5.4 Age- and Gender-specific Rates

Age and gender-specific rates for five-year age groups were calculated for each injury mechanism for 1995 to 1999 and presented as trends by age group. For each age and gender-specific rate, 95% confidence intervals were calculated to examine the statistical significance of differences between age groups

3.5.5 Injury Mechanism Subcategory-specific Frequencies

The total frequencies for each injury mechanism for 1995 to 1999 were divided into subcategories specific to each injury mechanism. For example, the total number of drownings was broken down into the frequencies for the different locations where drownings occurred (e.g., bathtubs, swimming pools). The frequencies for these injury mechanism subcategories were plotted as percentages on a pie chart. The list of injury mechanism subcategories by Ecode is presented in Appendix 1.

4.0 OVERVIEW

4.1 Deaths due to Injury

In 1999, injury and poisonings were the sixth leading cause of death in NSW (see Table 3), as well as the leading cause of death among people aged 1-44. Approximately 2,500 people died each year between 1986 and 1999 as the result of an injury. It is notable that in the under 45 age groups the number of injuries were far higher than the second leading cause of death, reinforcing the burden of injury in these young age groups.

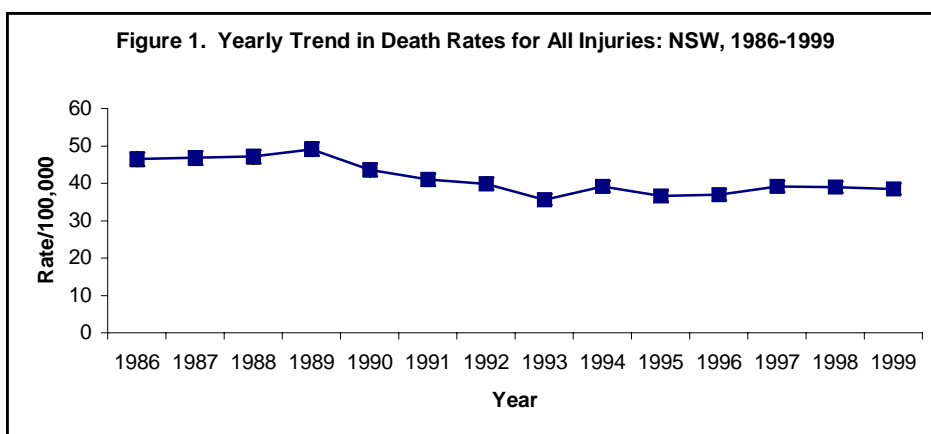


Figure 1 shows the trend in injury deaths rates between 1986 and 1999. The injury death rate has fallen over the period 1986 to 1999 although there was a small fluctuation in 1994 to a rate of 39.1/100,000 population. That year, injury was the fourth leading cause of death and the second leading cause of premature death (NSW Health Chief Health Officer's Report, 1997). Between 1995 and 1999, the injury death rate has fluctuated, increasing slightly. In this five-year period, 12,341 people died as the result of an injury, at a rate of 38.1/100,000 population.

Figure 2 shows the age-specific death rates for all injuries between 1995 and 1999. People aged 20-29 and 85 years and older were at greatest risk of dying from injuries and accounted for almost 30 percent of all injury deaths from 1995-1999.

Table 3. Top Ten Leading Causes of Death by Age Group: NSW, 1999*

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Perinatal Conditions 257	Injury and Poisoning 38	Injury and Poisoning 25	Injury and Poisoning 18	Injury and Poisoning 355	Injury and Poisoning 499	Injury and Poisoning 415	Cancer 863	Cancer 1,834	Diseases of Circulatory System 12,202	Diseases of Circulatory System 13,854
2	Ill-defined Conditions 50	Nervous System Diseases 9	Cancer 16	Cancer 8	Mental Disorders 49	Cancer 88	Cancer 275	Diseases of Circulatory System 446	Diseases of Circulatory System 913	Cancer 9,696	Cancer 12,841
3	Congenital Abnormalities 43	Endocrine Diseases 8	Respiratory Diseases #	Nervous System Diseases 6	Cancer 46	Mental Disorders 78	Diseases of Circulatory System 179	Injury and Poisoning 297	Endocrine Diseases 322	Endocrine Diseases 2,810	Endocrine Diseases 3,318
4	Diseases of Circulatory System 29	Infectious Diseases 7	Nervous System Diseases #	Endocrine Diseases 5	Infectious Diseases 33	Infectious Diseases 60	Infectious Diseases 116	Infectious Diseases 189	Infectious Diseases 270	Mental Disorders 2,611	Infectious Diseases 3,053
5	Nervous System Diseases 20	Respiratory Diseases 7	Endocrine Diseases #	Infectious Diseases #	Nervous System Diseases 29	Diseases of Circulatory System 51	Mental Disorders 76	Endocrine Diseases 101	Injury and Poisoning 201	Infectious Diseases 2,353	Mental Disorders 2,978
6	Infectious Diseases 19	Cancer 7	Infectious Diseases #	Diseases of Circulatory System #	Diseases of Circulatory System 22	Nervous System Diseases 26	Nervous System Diseases 42	Nervous System Diseases 73	Nervous System Diseases 122	Nervous System Diseases 1,763	Injury and Poisoning 2,633
7	Respiratory Diseases 17	Diseases of Circulatory System 6	Diseases of Circulatory System #	Respiratory Diseases #	Endocrine Diseases 15	Endocrine Diseases 13	Endocrine Diseases 34	Mental Disorders 69	Respiratory Diseases 114	Respiratory Diseases 1,340	Nervous System Diseases 2,092
8	Injury and Poisoning 12	Blood Diseases #	Blood Diseases #	Congenital Abnormalities 1	Respiratory Diseases 9	Respiratory Diseases 11	Digestive Diseases 23	Respiratory Diseases 51	Mental Disorders 94	Injury and Poisoning 773	Respiratory Diseases 1,564
9	Cancer 8	Congenital Abnormalities #	Digestive Diseases #	Mental Disorders #	Blood Diseases 5	Ill-defined Conditions 6	Respiratory Diseases 11	Digestive Diseases 30	Digestive Diseases 43	Blood Diseases 446	Blood Diseases 501
10	Endocrine Diseases 8	Perinatal Conditions #			Ill-defined Conditions 5	Digestive Diseases 5	Ill-defined Conditions 8	Blood Diseases 8	Blood Diseases 30	Digestive Diseases 226	Digestive Diseases 334

* Category of principle diagnosis was classified according to ICD-10 chapter headings for diseases and external causes of injuries and poisonings

Cell size less than five cases

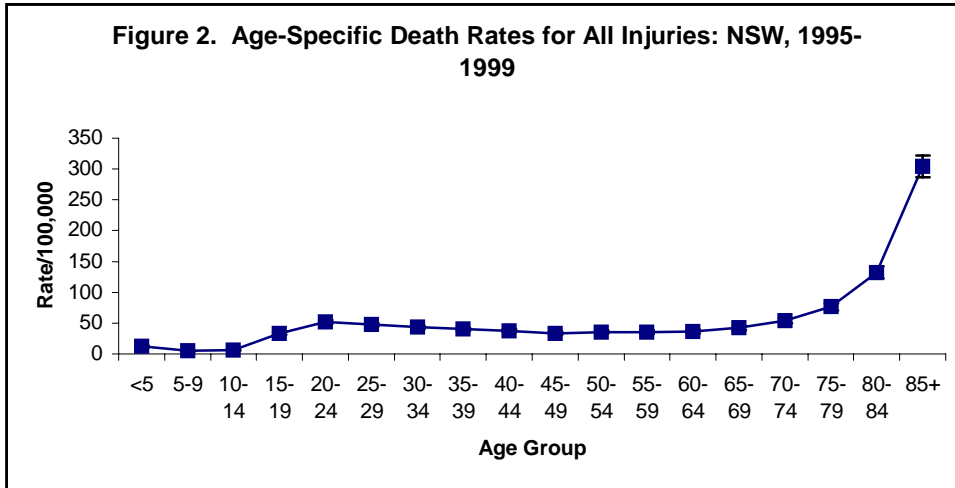
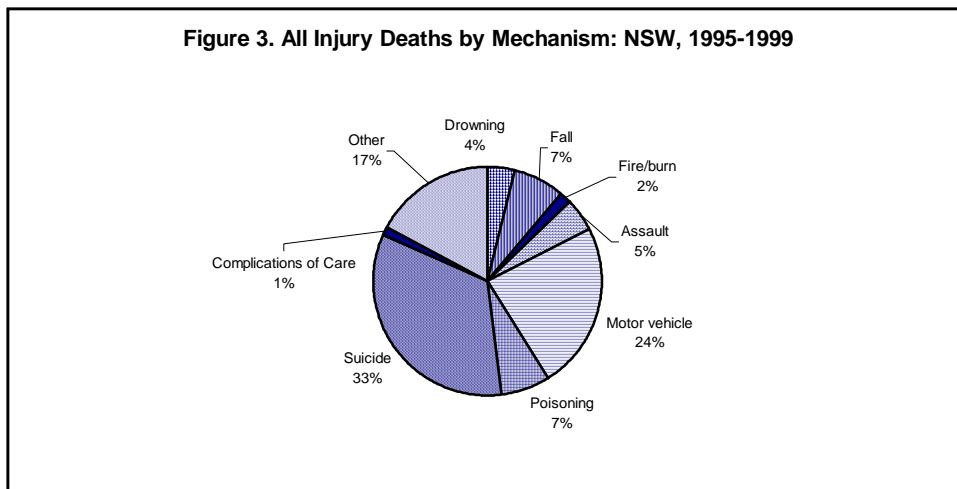


Figure 3 shows the percentage of deaths between 1995 and 1999 by the injury mechanisms listed in Table 4. This figure shows that 33 percent of the deaths in NSW were due to suicide and 24 percent were due to motor vehicle injuries. These two categories of injury deaths combined account for more than 50 percent of all injury deaths. Deaths due to drowning (4%) and complications of care (1%) were much less common. The injury mechanisms selected for study in this analysis accounted for more than 80 percent of all injury-related deaths from 1995 to 1999 in NSW.



The following table (See Table 4) shows the number of deaths and death rates by injury mechanism for all persons, males and females from 1995 to 1999.

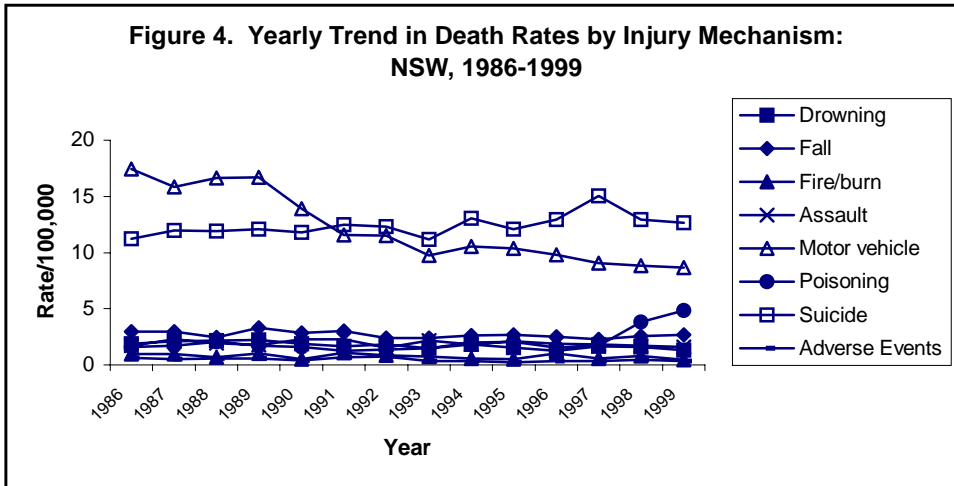
Table 4. Number of Deaths and Death Rates/100,000* by Injury Mechanism: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Suicide	4,151	13.1	3,276	21.1	875	5.4
Motor Vehicle	2,915	9.3	2,032	13.4	883	5.4
Falls	901	2.5	541	3.6	360	1.6
Poisoning	870	2.8	649	4.2	221	1.4
Interpersonal Violence	566	1.8	401	2.6	165	1.0
Drowning	465	1.5	366	2.3	99	0.6
Fire/Burns	223	0.7	142	0.9	81	0.5
Complications of care	121	0.3	59	0.4	62	0.3
All Injury	12,341	38.1	8,671	56.8	3,670	20.2

*Death rates have been age-adjusted using the 1991 Australian census population

Table 4 shows that death rates for males were higher than for females in all injury mechanisms. Table 4 also shows that 70 percent of all injury deaths between 1995 and 1999 were male. Males committed suicide, were poisoned and drowned three to four times more often than females from 1995 to 1999. In contrast, there was much less difference between males and females for complications of care and for fire/burns.

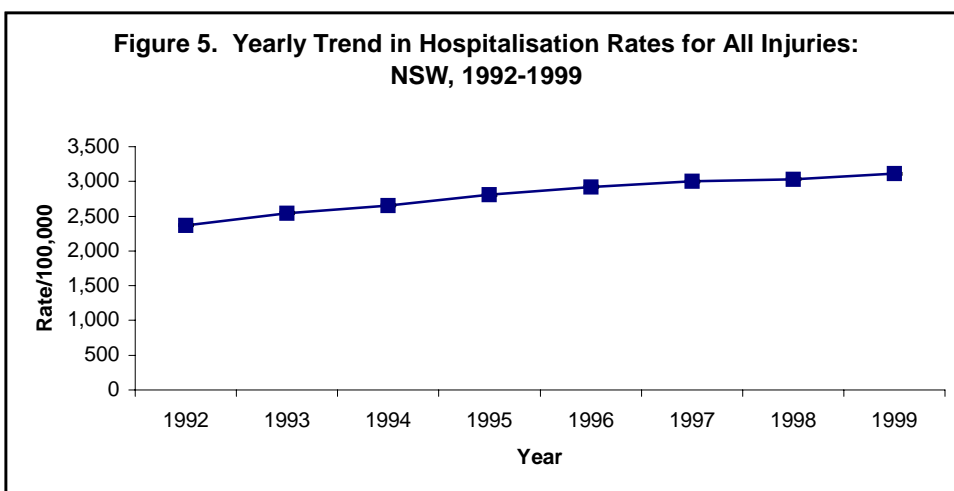
Figure 4 compares the trend in death rates between 1986 and 1999 for the injury mechanisms listed in Table 4.



In 1991, suicide overtook motor vehicles as the leading cause of death and exhibited a steadily increasing trend until 1997 and since then it has decreased. Motor vehicle crashes have steadily decreased since 1989, although the rate of decrease has slowed considerably in recent years. Of the other injury mechanisms shown in Figure 4, poisoning death rates have been increasing since 1996 and overall, motor vehicle death rates are decreasing the most rapidly.

4.2 Hospitalisations due to Injury

In 1999, injury and poisonings were the fourth leading cause of hospitalisation in NSW (see Table 5), as well as the leading cause of hospitalisation among people aged 10-14. More than 178,000 people were hospitalised each year between 1992 and 1999 as the result of an injury. Figure 5 shows the trend in injury hospitalisation rates between 1992 and 1999.



The injury hospitalisation rate increased by approximately 18 percent between 1992 and 1999. Between 1995 and 1999, nearly one million people were hospitalised as the result of an injury, at a rate of 2,978/100,000 population.

Figure 6 shows the age-specific rates for all injuries between 1995 and 1999. People aged 65 years and older were at the greatest risk of being hospitalised as a result of an injury from

1995-1999 and the risk clearly increased with increasing age. For all other age groups, the injury hospitalisation rates were very stable except for a slightly elevated hospitalisation rate for 15 to 35 year olds. As shown in Table 4, the 65 years and older age group accounted for around 26 percent of all injury hospitalisations in 1999, although most injury-related hospitalisations (56%) involved under 45 year olds.

Table 5. Top Ten Leading Causes of Hospitalisation by Age Group: NSW, 1999*

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Perinatal Conditions 26,734	Respiratory Diseases 17,370	Respiratory Diseases 9,526	Injury and Poisoning 7,277	Pregnancy 35,047	Pregnancy 83,205	Digestive Diseases 27,847	Digestive Diseases 35,607	Digestive Diseases 35,165	Diseases of Circulatory System 77,987	Digestive Diseases 218,152
2	Respiratory Diseases 7,611	Infectious Diseases 8,991	Injury and Poisoning 6,656	Respiratory Diseases 4,242	Digestive Diseases 19,436	Digestive Diseases 22,296	Pregnancy 25,410	Genitourinary Disease 18,915	Diseases of Circulatory System 24,751	Digestive Diseases 64,647	Pregnancy 144,055
3	Congenital Abnormalities 6,333	Injury and Poisoning 6,202	Disease of Ear and Mastoid Process 3,718	Digestive Diseases 3,892	Injury and Poisoning 19,338	Genitourinary Disease 17,694	Genitourinary Disease 21,609	Cancer 18,283	Cancer 21,544	Cancer 56,459	Diseases of Circulatory System 135,309
4	Ill-defined Conditions 3859	Disease of Ear and Mastoid Process 4,997	Digestive Diseases 3,677	Mental Disorders 2,649	Mental Disorders 10,928	Injury and Poisoning 17,380	Injury and Poisoning 14,390	Diseases of Circulatory System 17,585	Musculoskeletal Diseases 15,792	Disease of Eye and Adnexa 43,491	Injury and Poisoning 126,397
5	Infectious Diseases 3,301	Ill-defined Conditions 4,653	Infectious Diseases 2,519	Ill-defined Conditions 2,120	Respiratory Diseases 8,237	Mental Disorders 12,857	Musculoskeletal Diseases 13,774	Musculoskeletal Diseases 16,118	Genitourinary Disease 14,277	Respiratory Diseases 33,201	Cancer 119,456
6	Digestive Diseases 1,856	Digestive Diseases 3,729	Ill-defined Conditions 1,978	Skin Diseases 1,494	Genitourinary Disease 7,990	Musculoskeletal Diseases 10,220	Mental Disorders 12,026	Ill-defined Conditions 13,484	Ill-defined Conditions 12,930	Injury and Poisoning 32,708	Genitourinary Disease 113,423
7	Genitourinary Disease 1191	Congenital Abnormalities 2,723	Mental Disorders 1,748	Musculoskeletal Diseases 1,339	Musculoskeletal Diseases 6,691	Ill-defined Conditions 8,675	Cancer 11,015	Mental Disorders 11,949	Injury and Poisoning 9,798	Musculoskeletal Diseases 32,531	Respiratory Diseases 109,699
8	Injury and Poisoning 932	Genitourinary Disease 2,023	Genitourinary Disease 1,320	Infectious Diseases 1,234	Ill-defined Conditions 6,519	Respiratory Diseases 6,654	Ill-defined Conditions 10,987	Injury and Poisoning 11,716	Respiratory Diseases 9,349	Ill-defined Conditions 31,768	Musculoskeletal Diseases 97,965
9	Mental Disorders 776	Cancer 1,349	Congenital Abnormalities 1,287	Genitourinary Disease 1,181	Skin Diseases 4,131	Cancer 5,373	Diseases of Circulatory System 8,899	Respiratory Diseases 7,074	Disease of Eye and Adnexa 5,793	Genitourinary Disease 27,223	Ill-defined Conditions 96,973
10	Skin Diseases 606	Skin Diseases 1,330	Nervous System Diseases 1,277	Cancer 1,109	Cancer 2,976	Diseases of Circulatory System 3,779	Respiratory Diseases 6,435	Nervous System Diseases 6,011	Mental Disorders 5,652	Mental Disorders 12,611	Mental Disorders 72,045

* Category of principle diagnosis was classified according to ICD-10 chapter headings for diseases and injuries and poisonings
Also, counts may represent multiple presentations by same patient for same type of disease and/or unrelated condition

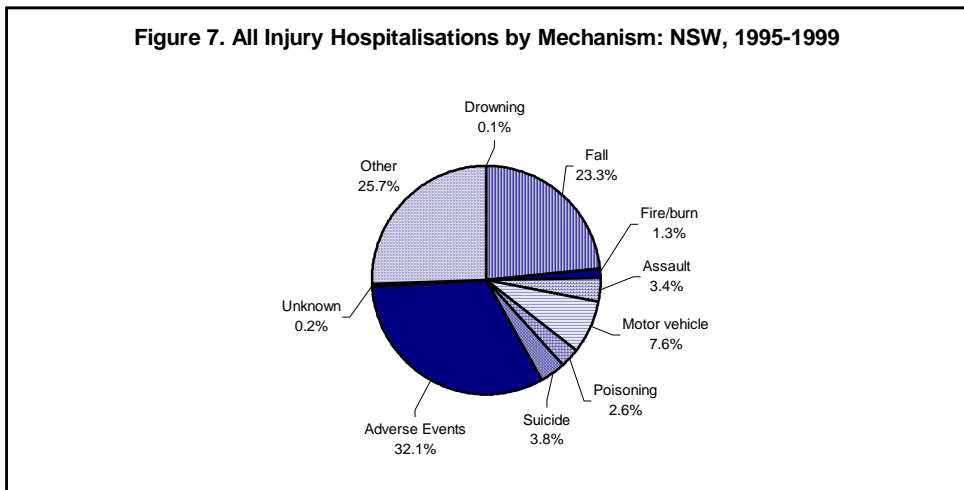
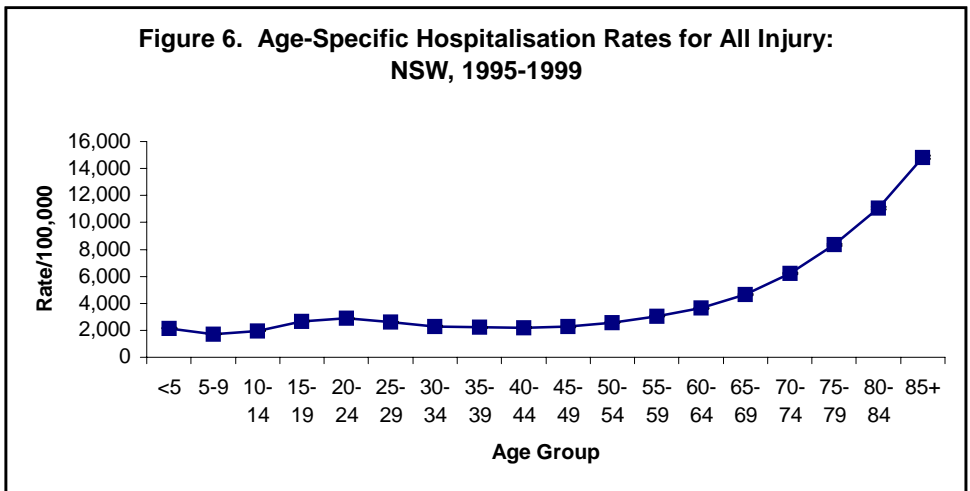


Figure 7 shows the percentage of hospitalisations between 1995 and 1999 by the injury mechanisms listed in Table 6.

Figure 7 shows that 32 percent of the hospitalisations in NSW were due to complications of care and 23 percent were due to falls injuries. These two categories of injury hospitalisations combined account for more than 50 percent of all injury hospitalisations. Hospitalisations due to fire/burns (1.3%) and near-drowning (0.1%) were much less common. The injury mechanisms selected for study in this analysis accounted for around three-quarters of all injury-related hospitalisations from 1995 to 1999 in NSW.

Table 6 shows the number of hospitalisations and hospitalisation rates by injury mechanism for all persons, males and females from 1995 to 1999.

Table 6. Number of Hospitalisations and Hospitalisation Rates/100,000* by Injury Mechanism: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Complications of care	309,102	922.1	155,853	997.8	153,240	870.9
Fall	224,141	661.7	97,939	644.8	126,202	646.2
Motor vehicle	73,245	238.0	47,439	311.9	25,806	163.3
Attempted Suicide	36,617	119.9	15,770	102.9	20,846	137.5
Interpersonal Violence	32,353	107.8	24,849	165.0	7,503	49.5
Poisoning	24,582	80.0	12,299	80.6	12,283	79.5
Fire/burn	12,838	42.0	8,074	52.9	4,764	31.0
Drowning	1,168	3.9	792	5.2	376	2.5
All Injury	963,300	2,978.1	535,910	3,486.7	427,372	2,452.3

*Hospitalisation rate has been age-adjusted using the 1991 Australian census population

Table 6 shows that hospitalisation rates for males were higher than for females in all injury mechanisms except falls and attempted suicide. Table 6 also shows that 56 percent of all injury hospitalisations between 1995 and 1999 were male. In particular, males had much higher assault and near-drowning hospitalisation rates than females from 1995 to 1999.

Figure 8 compares the trend in hospitalisation rates between 1992 and 1999 for the injury mechanisms listed in Table 6.

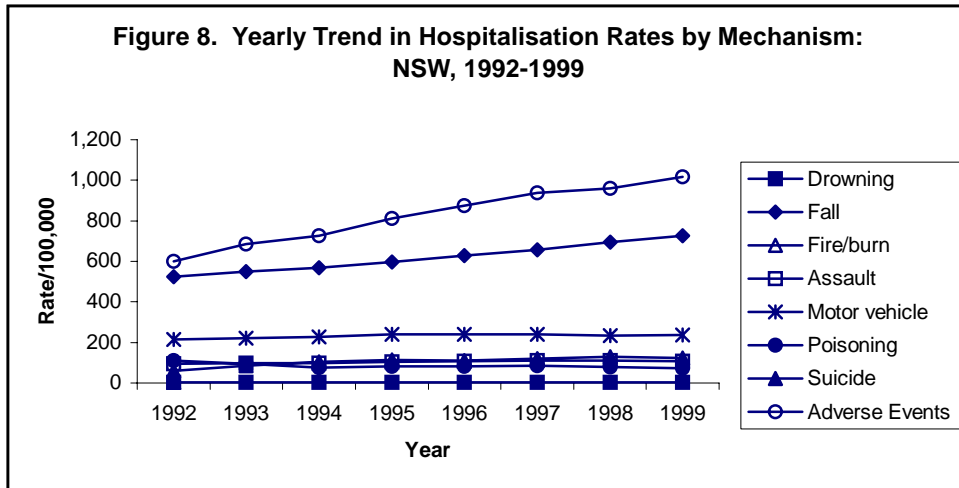


Figure 8 shows that the hospitalisation rates for complications of care and falls exceeded the rates for other injury types each year since 1992. The trends in complications of care and falls injury hospitalisations have also been increasing steadily, to their current rates of 1,016/100,000 and 726/100,000. Motor vehicle accidents were the next most common reason for injury-related hospitalisation, but the rates were less than half those shown for complications of care and falls.

For specific types of injury, the level of vulnerability varied across age groups. The following section examines each injury type in more detail in terms of the distribution across ages and the causes of each of the injury mechanisms.

4.3 Summary

Injury death rates have decreased in NSW since the early 1990's, although there has not been much change in since 1997. On the other hand, injury hospitalisations have been increasing steadily over the same time period. This suggests that we may be gaining better control over the most severe injuries, but that there is clearly still a need for injury prevention activities. One of the most concerning characteristics of injury is that it affects so many younger people. Not only was injury the leading cause of death in 1999 for under 45 year olds, the number of injury deaths in this age group were between two and eight times the number for the next highest cause of death. Injury also has clear effects on the older sections of the community. Both death and hospitalisation rates increase two to three-fold between 65 and 85 years of age.

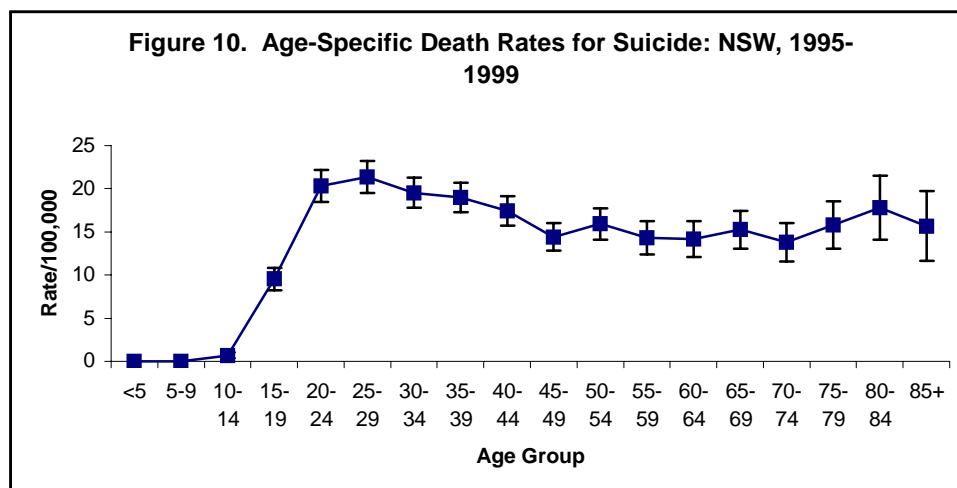
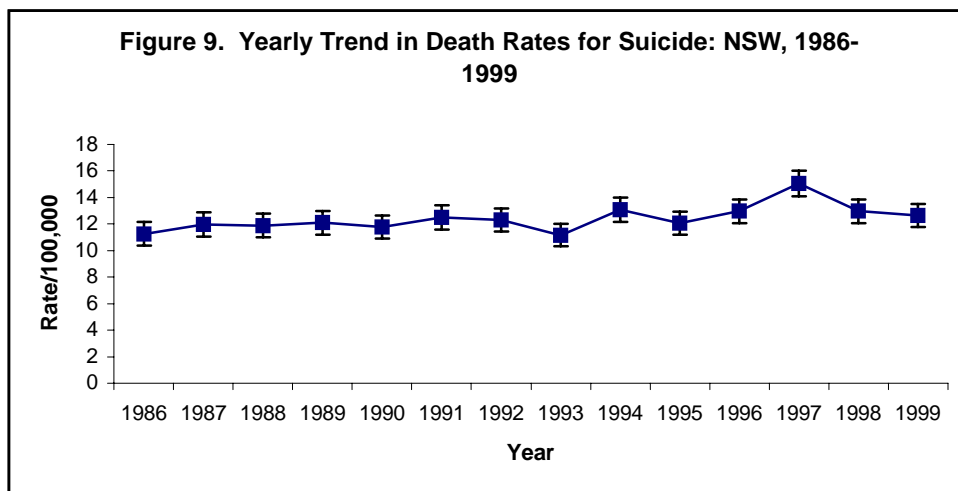
This analysis points to the causes of injury that need most attention. Suicide and motor vehicle are important targets for injury prevention activities. Although death rates for both of these injury mechanisms have decreased slowly since the mid to late 1990's, these injuries mechanisms still account for more than half of all injury deaths. In addition, poisoning is also important as death rates for poisoning have been increasing significantly since 1997. Further information emerges from the analysis of injury hospitalisations, which shows a different pattern. Complications of care and falls clearly show the highest hospitalisation rates and unlike rates for other injury causes, the rates have been increasing steadily from 1992 to 1999.

The analysis of injury mechanisms shows that males are much more likely to die due to all injury causes examined in this analysis except complications of care. For hospitalisations, the only causes where males and females differ greatly were interpersonal violence, drowning, motor vehicle accidents and fire/burns.

5.0 SUICIDE

5.1 Deaths due to Suicide

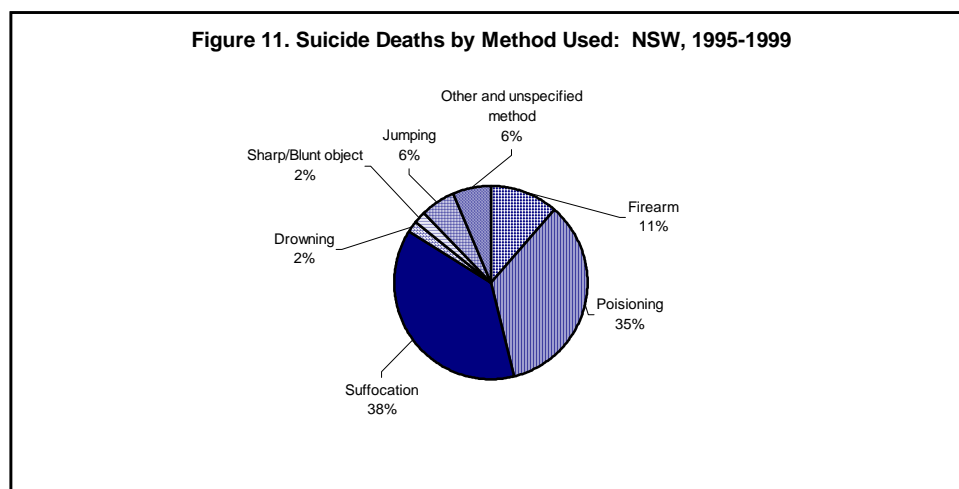
The suicide death rate shows a statistically significant increase between 1986 and 1997, but also shows a statistically significant decrease from 1997 to 1999 (Figure 9). Between 1995 and 1999, 4,151 people died from suicide, at a rate of 13.1 people/100,000 and 79 percent were male (Table 4).



Of the 4,151 suicide deaths in NSW between 1995 and 1999, 46 percent of suicide cases were between 20 and 39 years of age. Figure 10 illustrates the age-specific rates for suicide.

Between 1995 and 1999, people aged 20-39 years old were at greatest risk of dying from suicide, but all ages 40 years and older had high rates of suicide during this time period. From 1995 to 1999, males were 2.9 times more likely than females overall to die as the result of a suicide.

The following chart shows the percentage of deaths for various suicide methods.



Suffocation (hanging) (39%) and poisoning (34%) were the two most common methods of suicide between 1995 and 1999, followed by firearms (11%). Approximately six percent involved suicide methods that were either unspecified or classified as other types. Further analysis of suicide deaths classified in the other and unspecified category showed that jumping or lying in front of a moving object accounted for almost four percent of all suicide deaths.

Table 7. Number of Suicide Deaths and Death Rates/100,000* by Method Used: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Suffocation	1,569	5.0	1,319	8.6	250	1.6
Poisoning	1,439	4.5	1,040	6.6	399	2.4
Firearm	470	1.5	441	2.8	29	0.2
Other and Unspecified method	261	0.8	200	1.3	61	0.4
Jumping	252	0.8	170	1.1	82	0.5
Drowning	87	0.3	52	0.3	35	0.2
Sharp/Blunt object	73	0.2	54	0.3	19	0.1

*Death rates have been age-adjusted using the 1991 Australian census population

Table 7 shows the number of suicide deaths and death rates by the method used for all persons, males and females from 1995 to 1999. Males accounted for 84 percent of all suicides by suffocation and 73 percent of all suicide poisonings from 1995 to 1999. For females, the method of suicide most often used was poisoning.

Table 8 shows suicide deaths by age group and method used in NSW for 1995-1999. Suffocation ranked as the leading suicide method for persons aged 10-34 years and 65 years and older, while poisoning ranked highest for persons aged 35-64 followed fairly closely by suffocation. Suicide by firearms was the third most common method used for all age groups over 15 years and second most common for 10 to 14 year olds. There were no suicides in under 10 year olds.

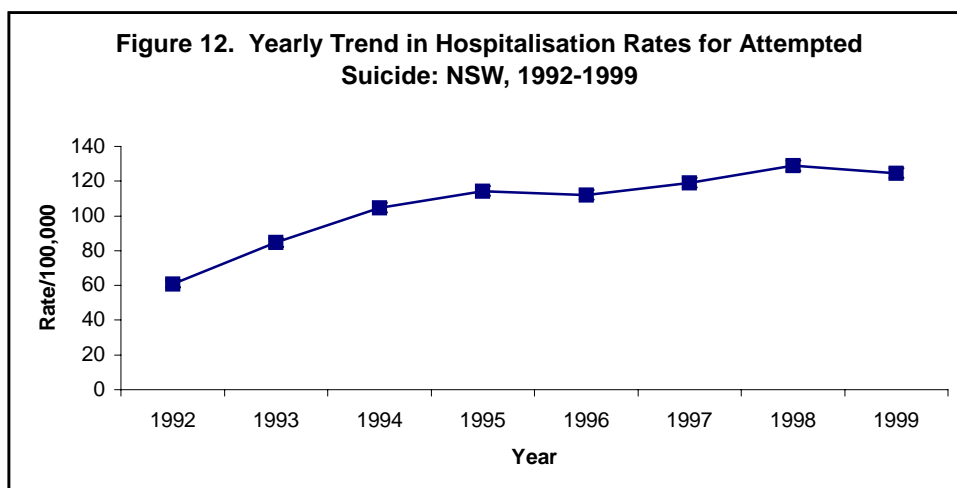
Table 8. Suicide Deaths by Age Group and Method Used: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1				Suffocation 11	Suffocation 317	Suffocation 425	Poisoning 361	Poisoning 255	Poisoning 160	Suffocation 195	Suffocation 1,569
2					Poisoning 131	Poisoning 343	Suffocation 324	Suffocation 185	Suffocation 112	Poisoning 189	Poisoning 1,439
3					Firearm 76	Firearm 72	Firearm 70	Firearm 75	Firearm 59	Firearm 116	Firearm 470
4					Other and unspecified 69	Other and unspecified 66	Jumping 47	Jumping 34	Jumping 23	Jumping 34	Other and unspecified 261
5					Jumping 56	Jumping 57	Other and unspecified 45	Other and unspecified 30	Other and unspecified 23	Drowning 29	Jumping 252
6					Drowning 11	Drowning 13	Drowning 15	Sharp/Blunt object 16	Drowning 8	Other and unspecified 27	Drowning 87
7					Sharp/Blunt object 9	Sharp/Blunt object 10	Sharp/Blunt object 15	Drowning 11	Sharp/Blunt object 5	Sharp/Blunt object 18	Sharp/Blunt object 73

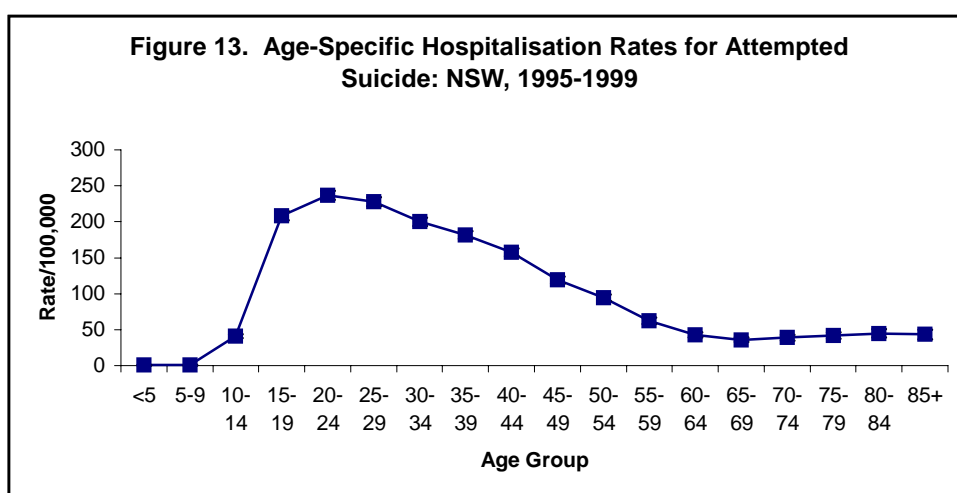
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5.2 Hospitalisations due to Attempted Suicide

The attempted suicide hospitalisation rate showed a statistically significant increase between 1992 and 1999 (Figure 12) although the increasing trend has slowed in recent years and has even demonstrated a slight decrease between 1998 and 1999. Between 1995 and 1999, 36,617 people were hospitalised for an attempted suicide, at a rate of 119.9 people/100,000 and 57 percent were female (Table 6).

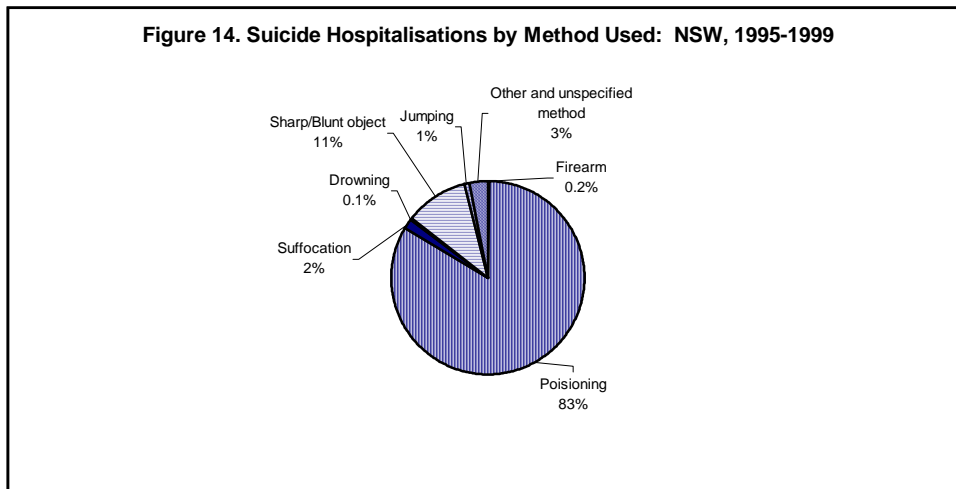


Of the 36,617 attempted suicide hospitalisations in NSW between 1995 to 1999, 30 percent of suicide attempts were by people between 20 and 29 years of age. Figure 13 illustrates the age-specific hospitalisation rates for attempted suicide.



People aged 20-39 years old were at greatest risk of being hospitalised for an attempted suicide between 1995 and 1999; however, all ages between 15 to 55 years were at an increased risk of being hospitalised for a suicide attempt during the same time period. Males were 30 percent less likely than females to be hospitalised as the result of a suicide attempt

The following chart shows the percentage of hospitalisations for various attempted suicide methods.



Poisoning was by far the most common method used in suicide attempts that resulted in hospitalisation, accounting for 83 percent (see Figure 14). A small percentage of cases used a sharp/blunt object and tiny percentages tried suffocation or jumping from a high place. An even tinier percentage was hospitalised because of injuries due to firearms.

Table 9. Number of Suicide Hospitalisations and Hospitalisation Rates/100,000* by Method Used: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Poisoning	30,511	99.7	12,007	78.0	18,503	122.0
Sharp/Blunt object	3,876	12.8	2,183	14.4	1,693	11.3
Other and unspecified method	1,143	3.8	764	5.0	379	2.5
Suffocation	653	2.2	528	3.5	125	0.8
Jumping	296	1.0	187	1.2	109	0.7
Firearm	91	0.3	77	0.5	14	0.1
Drowning	47	0.1	24	0.2	23	0.1

* Hospitalisation rates have been age-adjusted using the 1991 Australian census population

Table 9 shows the number of attempted suicide hospitalisations and hospitalisation rates by the method used for all persons, males and females from 1995 to 1999. Poisoning was the most common method of suicide attempt used by males and females that resulted in hospitalisation. Females accounted for 61 percent of all suicide attempts by poisoning. This was the only method for suicide attempts where females outnumbered males, with a difference of about 6,500 cases.

Table 10 shows attempted suicide hospitalisations by age group and method used in NSW for 1995-1999. Poisoning ranked as the leading suicide method for persons from age one to 65 years and older, while sharp/blunt objects were the only method used by children under age one. Hospitalisations for attempted suicide due to poisoning outnumbered the next leading cause by a factor of at least six for all age groups. A small number of children under ten years of age were coded as hospitalisations due to suicide attempts. Closer examination of these cases suggests that these cases were miscoded. Each of them had been classified as self-inflicted injury, but due to the age of these children, it is unlikely that the injury was intentional. This point needs further clarification.

Table 10. Attempted Suicide Hospitalisations by Age Group and Method Used: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	No categories with more than 5 cases	Poisoning 7	Poisoning 7	Poisoning 784	Poisoning 8,024	Poisoning 8,457	Poisoning 6,924	Poisoning 3,787	Poisoning 1,237	Poisoning 1,284	Poisoning 30,511
2		Other and unspecified #	Other and unspecified #	Sharp/Blunt object 54	Sharp/Blunt object 1,173	Sharp/Blunt object 1,208	Sharp/Blunt object 793	Sharp/Blunt object 349	Sharp/Blunt object 127	Sharp/Blunt object 170	Sharp/Blunt object 3,876
3				Suffocation 28	Other and unspecified 340	Other and unspecified 317	Other and unspecified 236	Other and unspecified 111	Other and unspecified 56	Other and unspecified 59	Other and unspecified 1,143
4				Other and unspecified 20	Suffocation 218	Suffocation 223	Suffocation 97	Suffocation 43	Jumping 14	Suffocation 31	Suffocation 653
5				Jumping 5	Jumping 93	Jumping 91	Jumping 67	Jumping 12	Suffocation 12	Jumping 14	Jumping 296
6					Firearm 15	Firearm 19	Firearm 36	Drowning 5	Firearm 10	Drowning 13	Firearm 91
7					Drowning 8	Drowning 7	Drowning 11	Firearm #	Drowning #	Firearm #	Drowning 47

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5.3 Summary

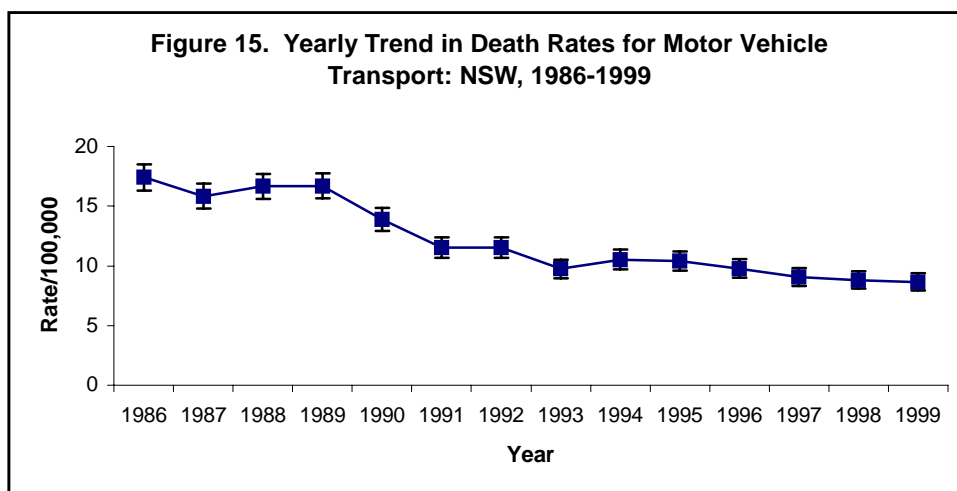
Death rates for suicide appear to have been fairly stable for the decade from 1986 to 1996 and while there was a peak in 1997, the rates were steady between 1998 and 1999. Hospitalisation rates for attempted suicide were climbing throughout the 1990's, but they showed a slight decrease between 1998 and 1999. Both death and hospitalisation rates showed a peak for young adults, but death rates remained relatively high for middle and older-aged adults whereas hospitalisation rates for these groups were much lower than for young adults. This suggests that young adults were much more likely to have a suicide attempt, be hospitalised and survive than older adults.

There were very clear differences in the method used for attempted suicide hospitalisations and suicide deaths. Poisoning also dominated the methods used in attempted suicides for all age groups. Poisoning was more than twice as common in suicide attempts as in suicide deaths. Use of sharp/blunt objects also showed higher representation for attempts. Suffocation, firearms and jumping showed the opposite pattern and were much more common among suicide deaths. These differences are most likely to be due to the immediacy of the effect of the suicide method. For all methods, death rates were higher for males than females. For all methods except poisoning, the same pattern was seen for hospitalisation rates. Females were considerably more likely than males to use poisoning to attempt suicide. When males used poisoning in a suicide attempt, however it was more likely to result in death than hospitalisation.

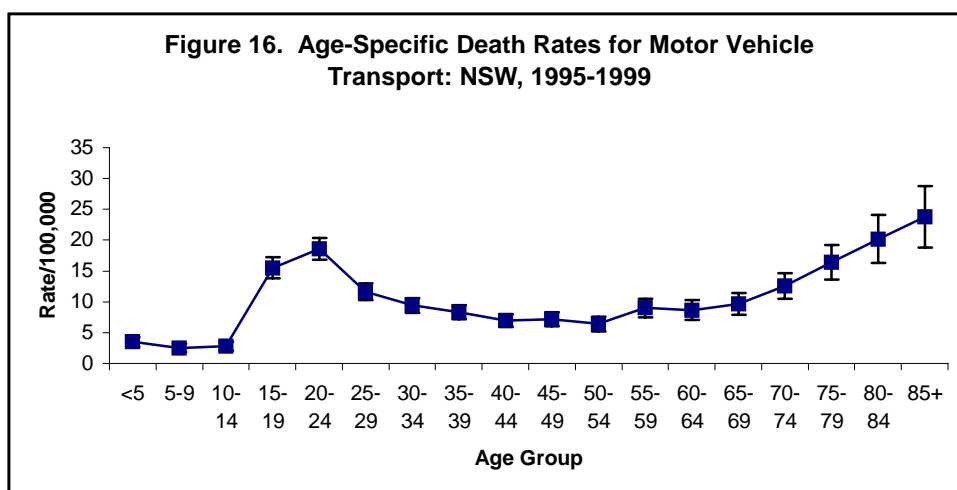
6.0 MOTOR VEHICLE TRANSPORT

6.1 Deaths due to Motor Vehicle Transport:

The motor vehicle transport (MV) death rate showed a statistically significant decrease overall between 1989 and 1999 although the rate of decrease has slowed since 1993 (Figure 15). Between 1995 and 1999, 2,915 people died from MV injuries, at a rate of 9.3 people/100,000 and 70 percent were male (Table 4).

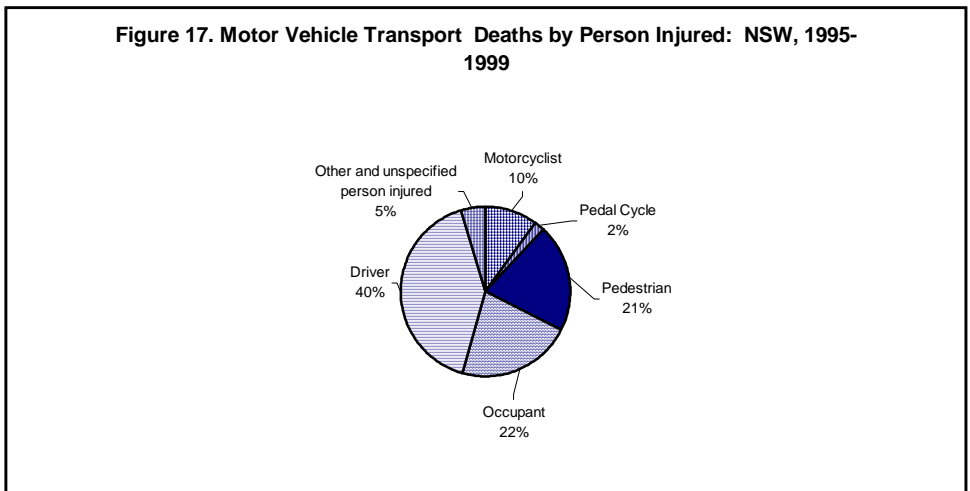


Of the 2,915 MV deaths in NSW between 1995 and 1999, approximately 26 percent of these cases were between 15 and 24 years of age. Figure 16 illustrates the age-specific death rates for MV.



People aged 15-24 and 75 years and older were at greatest risk of dying from motor vehicle-related injuries between 1995 and 1999. Males were 1.5 times more likely than females to die as the result of a motor vehicle crash.

The following chart shows the percentage of deaths for types of people injured in motor vehicle crashes.



Between 1995 and 1999, MV drivers were killed most often, accounting for 40 percent of all motor vehicle deaths. Pedestrian deaths accounted for 21 percent of all MV deaths and vehicle occupants accounted for 22 percent of MV deaths.

Table 11. Number of Motor Vehicle Transport Deaths and Death Rates/100,000* by Type of Person Injured: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Driver	1,193	3.8	889	5.8	304	1.9
Occupant	635	2.1	327	2.2	308	1.9
Pedestrian	604	1.9	407	2.7	197	1.1
Motorcyclist	294	1.0	279	1.8	15	0.1
Other and unspecified person injured	138	0.4	89	0.6	49	0.3
Pedal Cycle	51	0.2	41	0.3	10	0.1

*Death rates have been age-adjusted using the 1991 Australian census population

Table 11 shows the number of motor vehicle transport deaths and death rates by the type of person injured for all persons, males and females from 1995 to 1999.

Males accounted for 75 percent of all drivers who died of a motor vehicle transport injury. Males also died 17 times more often than females as motorcyclists. Females died most often as occupants in motor vehicle transport crashes.

Table 12 shows motor vehicle transport deaths by age group and person injured in NSW for 1995-1999. Three types of people were killed most often in motor vehicle transport accidents- drivers, occupants and pedestrians. Persons aged 15-64 were killed most often as drivers. Children under age one year and aged 5-14 years were killed most often as occupants. Children aged one to four years and adults age 65 years and older were killed most often as pedestrians. For the 15 to 44 age groups, motorcyclists were the third largest group of fatalities in motor vehicle accidents.

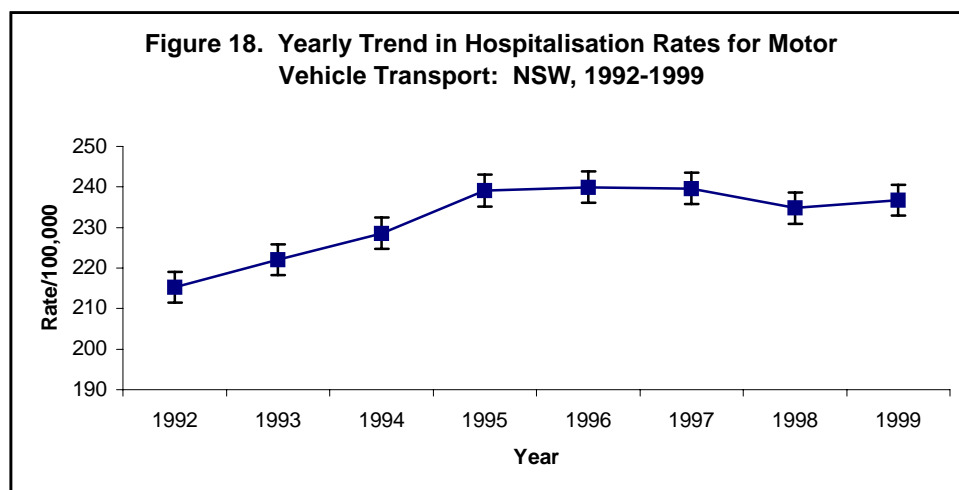
Table 12. Motor Vehicle Transport Deaths by Age Group and Person Injured: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Occupant 7	Pedestrian 35	Occupant 26	Occupant 21	Driver 342	Driver 249	Driver 188	Driver 132	Driver 94	Pedestrian 215	Driver 1,193
2	Pedestrian 1	Occupant 31	Pedestrian 20	Pedestrian 18	Occupant 198	Occupant 81	Occupant 56	Occupant 46	Pedestrian 72	Driver 184	Occupant 635
3		Motorcyclist #	Motorcyclist #	Pedal Cyclist 11	Motorcyclist 109	Motorcyclist 79	Motorcyclist 55	Pedestrian 45	Occupant 47	Occupant 122	Pedestrian 604
4		Other and unspecified #	Pedal Cyclist #	Motorcyclist 7	Pedestrian 77	Pedestrian 73	Pedestrian 48	Motorcyclist 22	Other and unspecified 16	Other and unspecified 38	Motorcyclist 294
5		Pedal Cyclist #	Other and unspecified #	Driver #	Other and unspecified 25	Other and unspecified 16	Other and unspecified 18	Other and unspecified 22	Motorcyclist 10	Pedal Cyclist 8	Other and unspecified 138
6			Driver #	Other and unspecified #	Pedal Cyclist 5	Pedal Cyclist 9	Pedal Cyclist #	Pedal Cyclist 6	Pedal Cyclist #	Motorcyclist 7	Pedal Cyclist 51

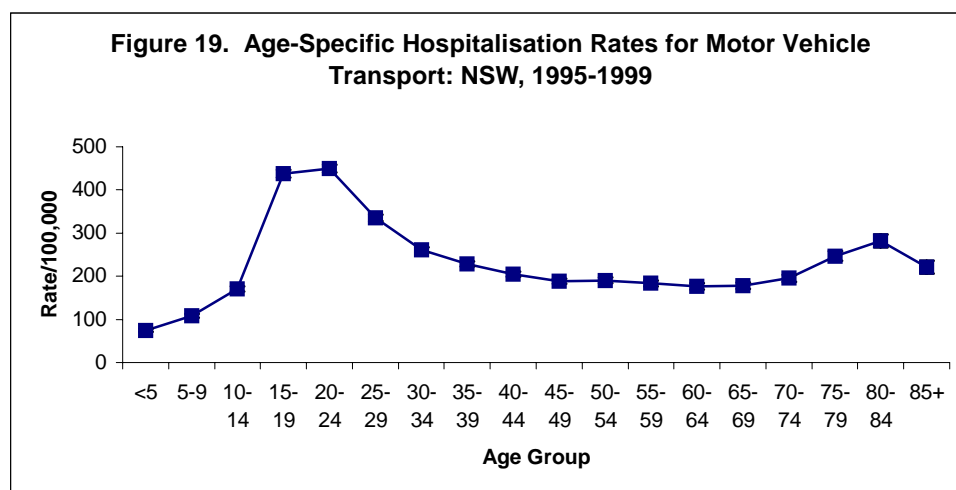
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6.2 Hospitalisations due to Motor Vehicle Transport:

The motor vehicle transport (MV) hospitalisation rate showed a statistically significant increase between 1992 and 1995 (Figure 18), but has remained relatively stable from 1995 to 1999. Between 1995 and 1999, 73,245 people were hospitalised for MV injuries, at a rate of 238.0 people/100,000 and 65 percent were male (Table 6).



Of the 73,245 MV hospitalisations in NSW between 1995 and 1999, approximately 27 percent of these cases were between 15 and 24 years of age and approximately six percent of



cases were over 75 years of age. Figure 19 illustrates the age-specific hospitalisation rates for MV.

People aged 15-24 years were at greatest risk of hospitalisation for motor vehicle-related injuries between 1995 and 1999. Males were around twice as likely as females to be hospitalised as the result of a motor vehicle crash.

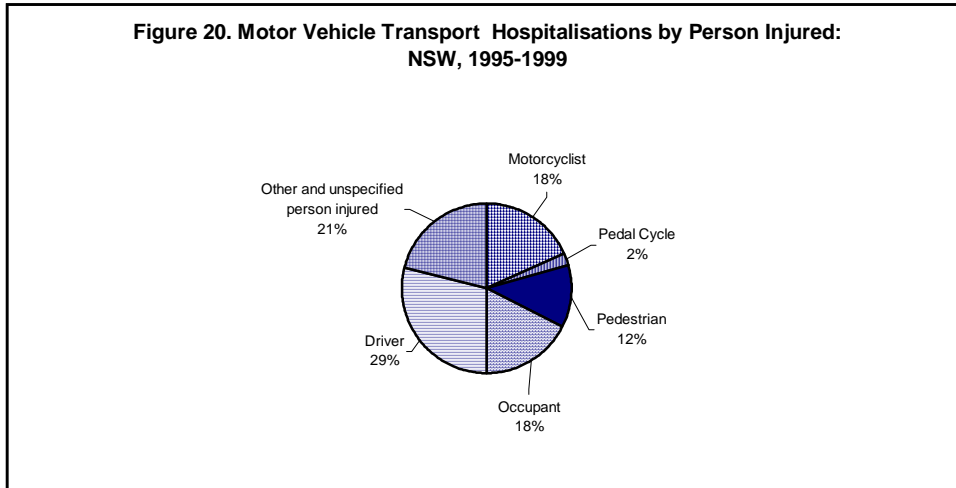


Figure 20 shows the percentage of hospitalisations for types of people injured in motor vehicle crashes. These results show that drivers were hospitalised most often (29%) as a result of a motor vehicle transport injury. Only two percent of hospitalised cases involved pedal cyclists. Notably, in around one in five cases of hospitalisation for motor vehicle crashes the type of road user was not coded.

Table 13. Number of Motor Vehicle Hospitalisation and Hospitalisation Rates/100,000* by Type of Person Injured: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Driver	21,136	68.1	12,950	84.6	8,186	52.3
Other/unspecified person injured	15,427	49.2	9,827	63.5	5,600	34.8
Motorcyclist	13,339	44.9	12,089	80.7	1,250	8.3
Occupant	12,965	42.5	5,765	38.5	7,200	45.9
Pedestrian	8,571	27.3	5,283	34.6	3,288	20.0
Pedal Cycle	1,807	6.0	1,525	10.1	282	1.9

* Hospitalisation rates have been age-adjusted using the 1991 Australian census population

Table 13 shows the number of motor vehicle transport hospitalisations and hospitalisation rates by the person injured for all persons, males and females from 1995 to 1999. Males accounted for 61 percent of all drivers hospitalised for a motor vehicle transport injury. Males were also hospitalised 8.7 times more often than females as motorcyclists and around five times more often as pedal cyclists. On the other hand, females were hospitalised more often than males with injuries sustained as a motor vehicle transport occupant.

Table 14 shows motor vehicle transport hospitalisations by age group and person injured in NSW for 1995-1999. Four types of people were hospitalised most often in motor vehicle transport accidents- drivers, occupants, motorcyclists and pedestrians. Persons aged 15 to 65 years and older were hospitalised most often as drivers. Children under age one year and aged 5-9 years were hospitalised most often as occupants. Children aged one to four years were hospitalised most often as pedestrians, while children aged 10-14 years were hospitalised most often as motorcyclists.

Table 14. Motor Vehicle Transport Hospitalisations by Age Group and Person Injured: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Occupant 128	Pedestrian 583	Occupant 701	Motorcyclist 1,285	Driver 5,710	Driver 4,588	Driver 3,542	Driver 2,679	Driver 1,822	Driver 2,633	Driver 21,136
2	Pedestrian 11	Occupant 538	Pedestrian 691	Occupant 844	Motorcyclist 4,985	Motorcyclist 3,346	Other and unspecified 2,959	Other and unspecified 2,309	Other and unspecified 1,253	Occupant 1,926	Other and unspecified 15,427
3	Other and unspecified 7	Other and unspecified 211	Motorcyclist 408	Pedestrian 712	Occupant 4,095	Other and unspecified 3,290	Motorcyclist 1,782	Occupant 966	Occupant 830	Pedestrian 1,844	Motorcyclist 13,339
4	Motorcyclist 5	Motorcyclist 88	Pedal Cyclist 301	Pedal Cyclist 421	Other and unspecified 3,031	Occupant 1,827	Occupant 1,110	Motorcyclist 856	Pedestrian 644	Other and unspecified 1,782	Occupant 12,965
5		Pedal Cyclist 49	Other and unspecified 269	Other and unspecified 316	Pedestrian 1,447	Pedestrian 1,045	Pedestrian 881	Pedestrian 713	Motorcyclist 336	Motorcyclist 248	Pedestrian 8,571
6		Driver 9	Driver 21	Driver 129	Pedal Cyclist 388	Pedal Cyclist 285	Pedal Cyclist 176	Pedal Cyclist 84	Pedal Cyclist 50	Pedal Cyclist 53	Pedal Cyclist 1,807

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6.3 Summary

Death rates due to motor vehicle injury have been decreasing since the mid 1980's, although the rate of decrease has slowed since around 1993. Hospitalisations for motor vehicle injury, in contrast, increased by about 10 percent between 1992 and 1995 and have remained fairly stable since then. Young adults, between 15 and 24 years of age, account for around one-quarter of motor vehicle deaths and hospitalisations. Very high death rates were also seen for over 75 year olds, but hospitalisation rates were only moderately high for this age group. Further analysis needs to examine the reasons for this pattern in over 75 year olds.

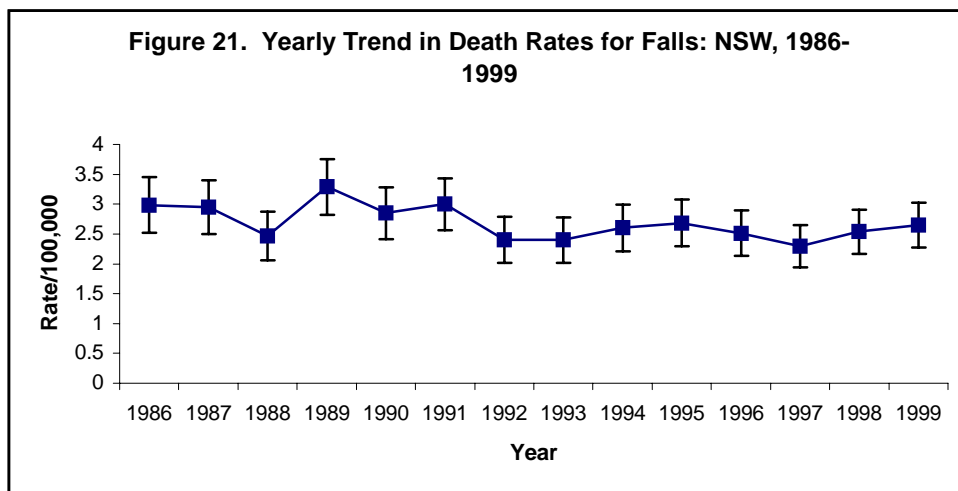
Different patterns of death and hospitalisation rates were seen for the various road user groups. Drivers were a larger percentage of the motor vehicle fatalities but pedestrians and motorcyclists were a larger percentage of hospitalisations. In particular, motorcycle injury was relatively common for the 15 to 34 year old age group as it accounted for around one quarter of hospitalisations, but only around 15 percent of motor vehicle deaths for motor vehicle injury in this age group. This finding suggests that drivers are more at risk of severe injury than pedestrian and motorcycle riders. As analysis of road traffic crash databases suggests the opposite (RTA, 2001), this finding needs to be explored further.

Death and hospitalisation rates were much higher for male for all types of road users except vehicle occupants where there was little difference in male and female rates. This is probably because vehicle occupants play little role in causing crashes.

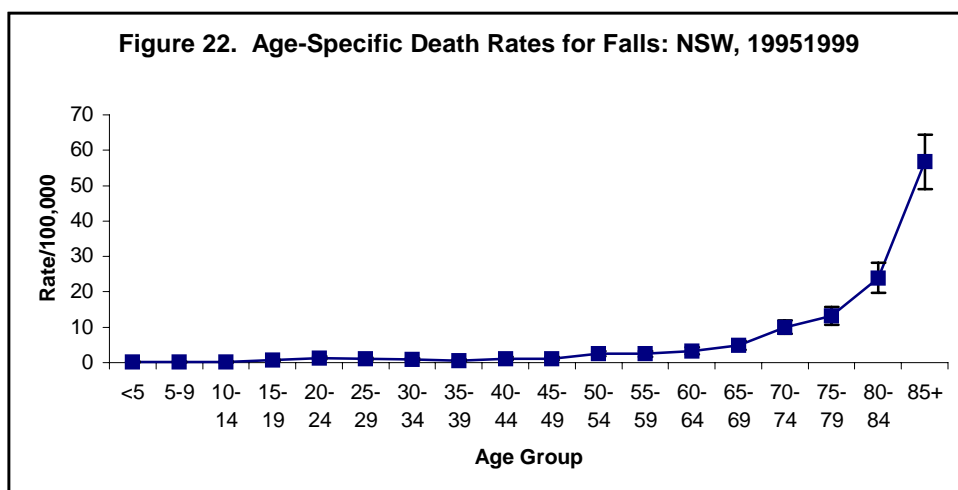
7.0 FALLS

7.1 Deaths due to Falls:

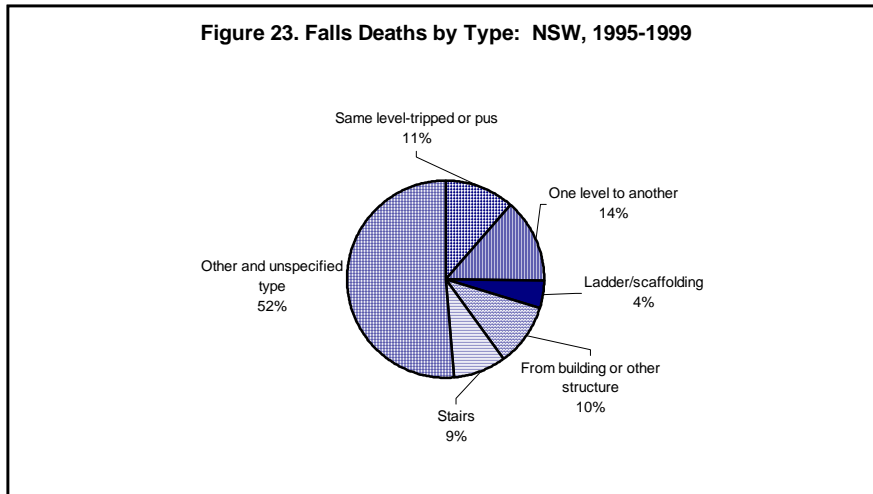
The falls death rate showed a statistically significant decrease between 1989 and 1997, but showed signs of increasing again from 1997 to 1999 (Figure 21). Between 1995 and 1999, 901 people died from falls, at a rate of 2.5 people /100,000 and 60 percent were male (Table 4).



Of the 901 falls deaths in NSW between 1995 and 1999, approximately 60 percent of these cases were 70 years of age and older. Figure 22 illustrates the age-specific death rates for all falls.



People 70 years and older were at greatest risk of dying from a fall-related injury between 1995 and 1999. Males were 1.2 times more likely than females to die as the result of a fall. The following chart shows the percentage of deaths for various types of falls.



Falling from one level to another (14%) or on the same level after tripping (11%) were the most common types of fall between 1995 and 1999, when circumstances surrounding the fall were known. In 52 percent of the deaths, the circumstances causing the fall were either another type of cause or an unspecified cause. Unspecified types of falls accounted for 45 percent of all falls, limiting the value of this analysis of the mechanism of fall injury.

Table 15. Number of Falls Deaths and Death Rates/100,000* by Type of Fall: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Other and unspecified type	463	1.2	218	1.5	245	1.1
One level to another	126	0.4	86	0.6	40	0.2
Same level-tripped or pushed	103	0.3	69	0.5	34	0.2
From building or other structure	91	0.3	79	0.5	12	0.1
Stairs	78	0.2	51	0.3	27	0.1
Ladder/scaffolding	40	0.1	38	0.2	2	0.0

*Death rates have been age-adjusted using the 1991 Australian census population

Table 15 shows the number of falls deaths and death rates by the type/circumstance of fall for all persons, males and females from 1995 to 1999. Deaths due to falls were more common in males than females for all types of falls. In particular, males accounted for almost all of the deaths caused by falling off a ladder or scaffolding and for the greater majority of falls from a building or other structure.

Table 16 shows falls deaths by age group and type of fall in NSW for 1995-1999. Three types of falls were ranked highest among all age groups- one level to another, from a building or other structure and other and unspecified type of fall. Deaths due to falls were very uncommon for children under 15 years of age. For 15 to 34 year olds, most falls were from one level to another, but for 25 to 34 year olds, falling from buildings or other structures accounted for nearly the same proportion of deaths in this age group. For over 45's, the largest group of falls were classified as other and unspecified, especially for those involving people over 65 years of age, where more than half of cases were classified as other and unspecified.

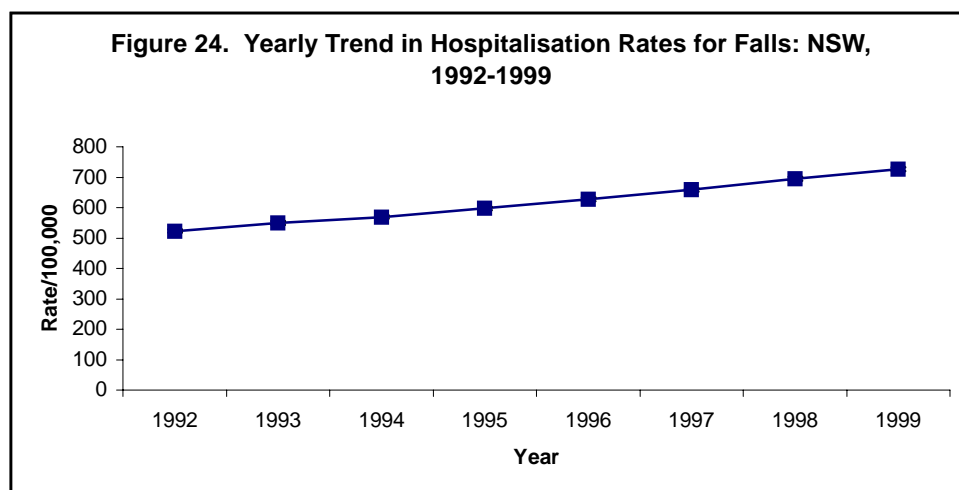
Table 16. Falls Deaths by Age Group and Type Of Fall: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	One level to another #	From building or other structure #	One level to another #	One level to another #	One level to another 24	One level to another 21	From building/ other structure 11	Other and unspecified 24	Other and unspecified 28	Other and unspecified 394	Other and unspecified 463
2	From building or other structure #		Other and unspecified #	From building or other structure #	From building/ other structure 13	From building/ other structure 18	Other and unspecified 8	From building/ other structure 15	Same level-tripped/ pushed 13	Same level-tripped/ pushed 68	One level to another 126
3					Same level-tripped/pushed #	Other and unspecified 5	Stairs 8	Stairs 9	From building/ other structure 10	Stairs 51	Same level-tripped/ pushed 103
4					Other and unspecified #	Same level-tripped/pushed #	Same level-tripped/ pushed 7	Same level-tripped/pushed 9	One level to another 10	One level to another 50	From building/ other structure 91
5					Ladder/ scaffolding #	Ladder/ scaffolding #	One level to another 6	One level to another 9	Stairs 9	Ladder/ scaffolding 22	Stairs 78
6						Stairs #	Ladder/ scaffolding #	Ladder/ scaffolding 6	Ladder/ scaffolding 8	From building/ other structure 19	Ladder/ scaffolding 40

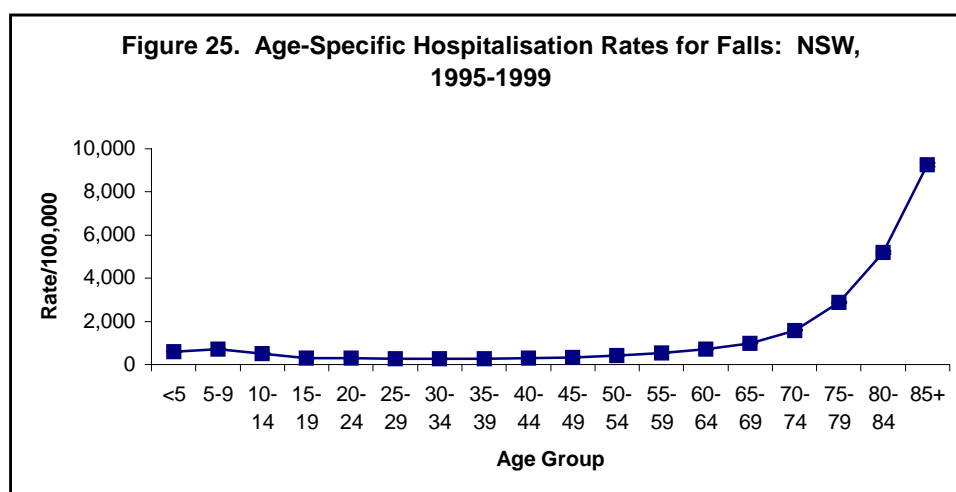
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7.2 Hospitalisations due to Falls:

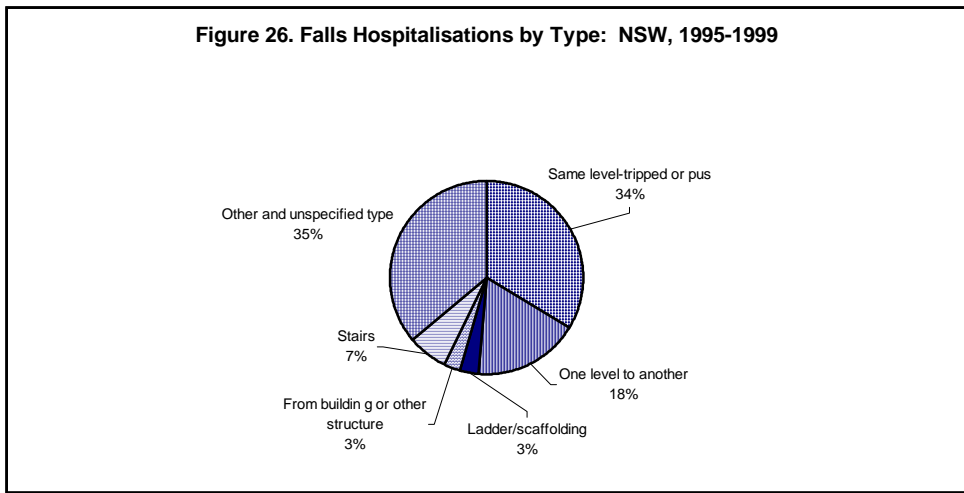
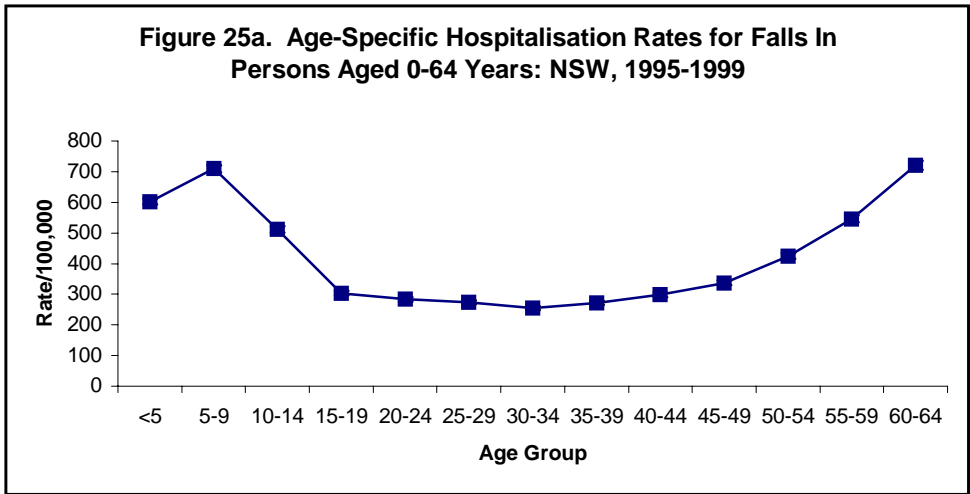
The falls hospitalisation rate showed a steady and statistically significant increase between 1992 and 1999 (Figure 24). Between 1995 and 1999, 224,141 people were hospitalised for falls injuries, at a rate of 661.7 people /100,000 and 56 percent were female (Table 6).



Of the 224,141 falls hospitalisations in NSW between 1995 and 1999, approximately 50 percent of these cases were 65 years of age and older. Figure 25 illustrates the age-specific hospitalisation rates for all falls.



People 70 years and older were at greatest risk of being hospitalised for a fall-related injury between 1995 and 1999. Males and females were hospitalised for falls at equivalent rates. As the fall hospitalisation rates for over 70 year olds were so markedly higher than those for younger age groups, the figure was redrawn to display only the 0 to 64 age groups. As seen in Figure 25a, children under the age of 15 were hospitalised at more than double the rate of people aged 15 to 50 years. The falls hospitalisation rates began to increase again after 50 to 55 years of age, but the rates never reached those seen for under ten year olds.



The following chart shows the percentage of hospitalisations for various types of falls.

Falls on the same level after tripping or being pushed (34%) were the most common type of fall resulting in hospitalisation followed by 18 percent who fell from one level to another. More than one-third of all falls hospitalisation cases were classified as either another type of fall or as unspecified. Further analysis showed that 33 percent of all falls hospitalisation cases were coded as unspecified falls.

Table 17. Number of Falls Hospitalisations and Hospitalisation Death Rates/100,000* by Type of Fall: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Other and unspecified type	80,908	232.0	31,662	210.3	49,246	239.4
Same level-tripped or pushed	75,500	220.1	28,592	190.2	46,908	235.4
One level to another	39,794	124.2	21,233	139.1	18,561	107.0
Stairs	14,739	43.9	5,896	38.4	8,843	48.0
Ladder/scaffolding	6,663	20.2	5,471	34.1	1,192	6.9
From building or other structure	6,537	21.2	5,085	32.9	1,452	9.5

* Hospitalisation rates have been age-adjusted using the 1991 Australian census population

Table 17 shows the number of falls hospitalisations and hospitalisation rates by the type/circumstance of fall for all persons, males and females from 1995 to 1999. Both males and females were hospitalised most often for falls caused by tripping on the same level. Females accounted for 62 percent of this type of hospitalised fall. Females also accounted for nearly 60 percent of falls involving stairs. In contrast, males accounted for around five times the number of falls from ladders or scaffolding or from buildings compared to females.

Table 18 shows falls hospitalisations by age group and type of fall in NSW for 1995-1999. Three types of falls were ranked highest among all age groups- one level to another, same level after tripping or being pushed and other and unspecified type of fall. Children under nine years of age clearly were hospitalised most often after a fall from one level to another. For all age groups from fifteen years of age onwards, the most common falls hospitalisations were for same level trip or pushed or other and unspecified in fairly similar proportions. For 10 to 14 year olds, hospitalisations for falls were mainly for same level tripped or pushed, falls from on level to another or other and unspecified in roughly equal proportions.

Table 18. Falls Hospitalisations by Age Group and Type Of Fall: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	One level to another 975	One level to another 6,233	One level to another 9,004	Same level-tripped or pushed 3,744	Same level-tripped or pushed 4,971	Same level-tripped or pushed 4,269	Other and unspecified 4,553	Other and unspecified 5,057	Same level-tripped or pushed 6,144	Other and unspecified 49,530	Other and unspecified 80,908
2	Other and unspecified 307	Other and unspecified 1,951	Same level-tripped or pushed 2,723	One level to another 3,462	Other and unspecified 3,853	Other and unspecified 3,986	Same level-tripped or pushed 4,027	Same level-tripped or pushed 4,621	Other and unspecified 5,941	Same level-tripped or pushed 43,153	Same level-tripped or pushed 75,500
3	Stairs 199	Same level-tripped or pushed 1,753	Other and unspecified 2,676	Other and unspecified 3,054	One level to another 1,919	One level to another 1,656	One level to another 1,767	One level to another 1,868	One level to another 1,871	One level to another 11,039	One level to another 39,794
4	Same level-tripped or pushed 95	From building or other structure 835	From building or other structure 784	From building or other structure 481	From building or other structure 985	Stairs 1,118	Stairs 1,354	Stairs 1,508	Stairs 1,537	Stairs 6,686	Stairs 14,739
5	From building or other structure 18	Stairs 718	Stairs 358	Stairs 340	Stairs 921	From building or other structure 1,010	Ladder/scaffolding 1,129	Ladder/scaffolding 1,403	Ladder/scaffolding 1,256	Ladder/scaffolding 1,656	Ladder/scaffolding 6,663
6		Ladder/scaffolding 82	Ladder/scaffolding 83	Ladder/scaffolding 47	Ladder/scaffolding 321	Ladder/scaffolding 684	From building or other structure 842	From building or other structure 682	From building or other structure 410	From building or other structure 490	From building or other structure 6,537

Cell size less than five cases

7.3 Summary

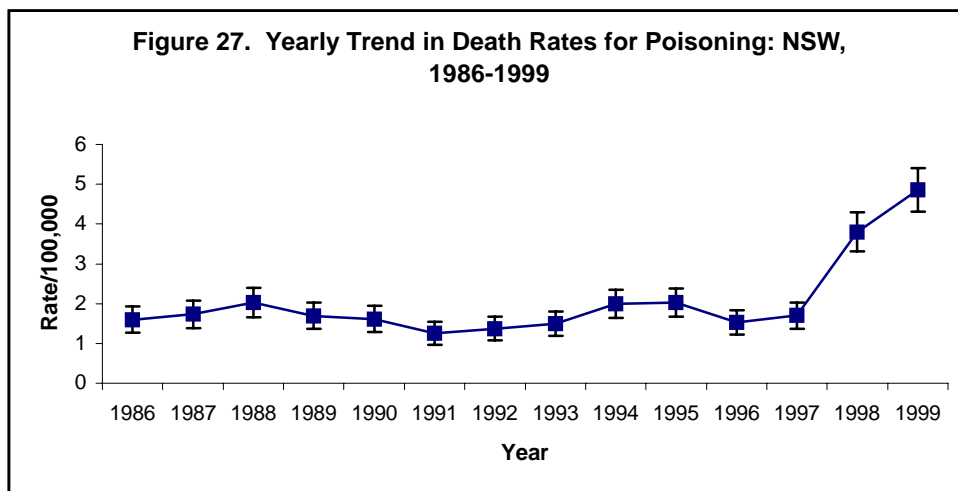
Death rates for falls show some indication of increasing since 1997, but hospitalisations have definitely been increasing steadily since 1992. Overwhelmingly, falls deaths and hospitalisations involve people over the age of 65 to 70 years. A comparatively much smaller peak in death rates is shown by 20 to 39 year olds probably due to workplace injury. Hospitalisation rates for falls were also elevated for children under 15 years of age, although the rates were much lower than for over 65 year olds. For people over 15 years of age, falls from a building or other structure accounted for a larger proportion of fall-related deaths than hospitalisations, whereas falls on the same level caused a considerably higher proportion of hospitalisations. These differences most likely reflect severity of injury from these causes. For under 15 year olds, deaths due to falls were relatively uncommon but significant numbers of children were hospitalised for falls. For under ten year olds, this was mainly due to falls from one level to another, whereas 10 to 14 year olds hospitalised falls mainly occurred due to falls on the same level, beubg pushed and falls from one level to another.

Unlike some other types of injury, females were more likely to be hospitalised for some types of falls, especially falls on the same level and falls on stairs. This was not so, however for fall-related deaths where males were more likely to be involved for all fall types. The analysis of fall-related injury is considerably hampered by coding problems since for around half of fall-related deaths and over one-third of hospitalisations the type of fall was unspecified. This is a problem that needs further attention.

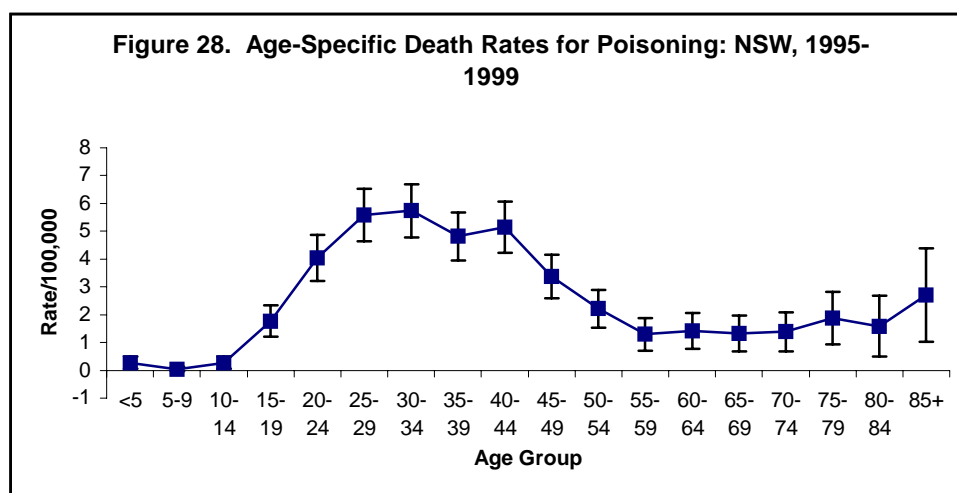
8.0 POISONING

8.1 Deaths due to Poisoning:

The poisoning death rate fluctuated between 1986 and 1997, but showed marked statistically significant increase from 1997 to 1998 and again from 1998 to 1999 (Figure 27). Between 1995 and 1999, 870 people died from poisonings, at a rate of 2.8 people /100,000 and 75 percent were male (Table 4).



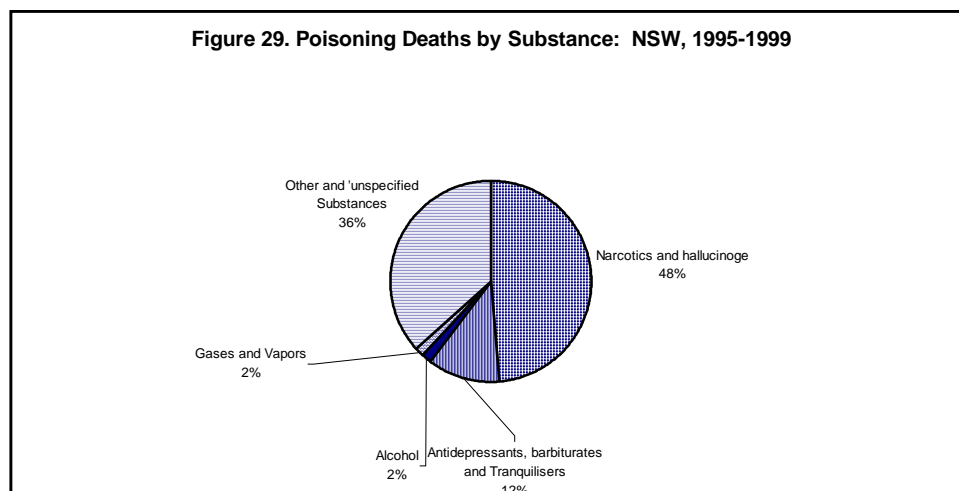
Of the 870 poisoning deaths in NSW between 1995 and 1999, approximately 59 percent of



these cases were between 25 and 44 years of age. Figure 28 illustrates the age-specific death rates for poisonings.

People aged 25-44 were at greatest risk of dying as a result of a poisoning between 1995 and 1999. Males were 2.1 times more likely than females to die as the result of a poisoning.

The following chart (Figure 29) shows the percentage of poisoning deaths for various substances.



Narcotics and hallucinogens were by far the most common substances causing poisoning deaths between 1995 and 1999, followed by antidepressants, barbiturates and tranquilizers. Approximately 36 percent involved substances that were either unspecified or classified as other types. Further analysis of the data showed that these unspecified cases accounted for 28 percent of all poisoning deaths and were coded as unspecified drugs, medicaments or biological substances.

Table 19. Number of Poisoning Deaths and Death Rates/100,000* by Type of Substance: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Narcotics and Hallucinogens	422	1.4	356	2.3	66	0.4
Other and Unspecified Substances	318	1.0	208	1.3	110	0.7
Antidepressants, Barbiturates and Tranquilisers	102	0.3	59	0.4	43	0.3
Alcohol	14	0.0	14	0.1	0	0.0
Gases and Vapors	14	0.0	12	0.1	2	0.0

*Death rates have been age-adjusted using the 1991 Australian census population

Table 19 shows the number of poisoning deaths and death rates by the substance used for all persons, males and females from 1995 to 1999. Males accounted for 84 percent of all deaths caused by narcotics poisoning between 1995 and 1999. For females, approximately one-third died as a result of a poisoning by a substance classified as other and unspecified.

Table 20 shows poisoning deaths by age group and type of substance used in NSW for 1995-1999. Three groups of substances accounted for the leading type of poisoning for all age groups- (i) narcotics and hallucinogens; (ii) antidepressants, barbiturates and tranquilisers; and (iii) other and unspecified substances. Narcotics and hallucinogens were the leading cause of poisoning deaths in people from age one to 44 years. Antidepressants, barbiturates and tranquilisers were the leading cause of poisoning in adults aged 55-64 years. Other and unspecified substances were the leading cause of poisoning in adults aged 45-54 years and adults age 65 years and older. Poisoning deaths were relatively rare for children under the age of 14 years.

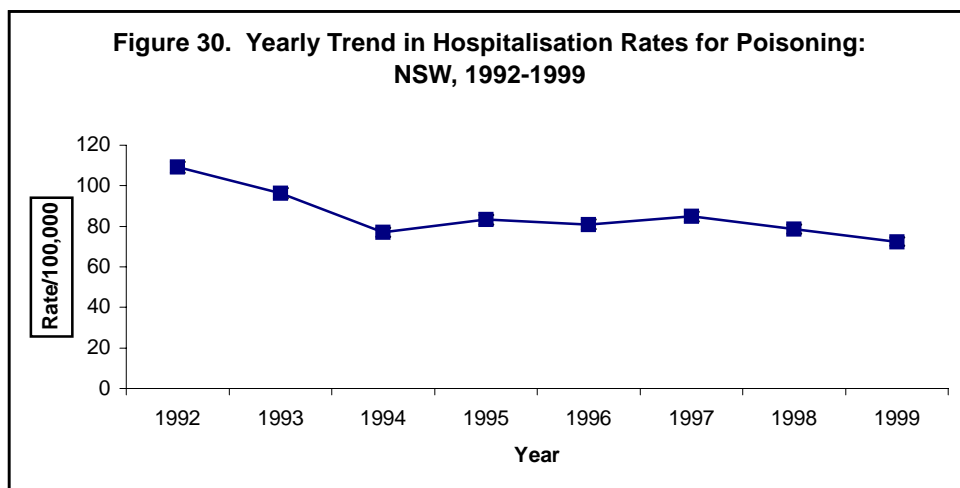
Table 20. Poisoning Deaths by Age Group and Substance Used: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Other and unspecified substances #	Narcotics and hallucinogens #	Narcotics and hallucinogens #	Narcotics and hallucinogens #	Narcotics and hallucinogens 76	Narcotics and hallucinogens 164	Narcotics and hallucinogens 119	Other and unspecified substances 43	Antidepressants, barbiturates and Tranquilisers 13	Other and unspecified substances 38	Narcotics and hallucinogens 422
2	Narcotics and hallucinogens #			Other and unspecified substances #	Other and unspecified substances 42	Other and unspecified substances 89	Other and unspecified substances 91	Narcotics and hallucinogens 41	Other and unspecified substances 11	Antidepressants, barbiturates and Tranquilisers 13	Other and unspecified substances 318
3	Antidepressants, barbiturates and Tranquilisers #			Antidepressants, barbiturates and Tranquilisers #	Antidepressants, barbiturates and Tranquilisers 6	Antidepressants, barbiturates and Tranquilisers 14	Antidepressants, barbiturates and Tranquilisers 27	Antidepressants, barbiturates and Tranquilisers 27	Narcotics and hallucinogens 8	Narcotics and hallucinogens 8	Antidepressants, barbiturates and Tranquilisers 102
4				Gases and Vapors #	Gases and Vapors #	Gases and Vapors 5	Alcohol #	Alcohol #	Alcohol #	Alcohol #	Alcohol 14
5					Alcohol #	Alcohol #		Gases and Vapors #	Gases and Vapors #	Gases and Vapors #	Gases and Vapors 14

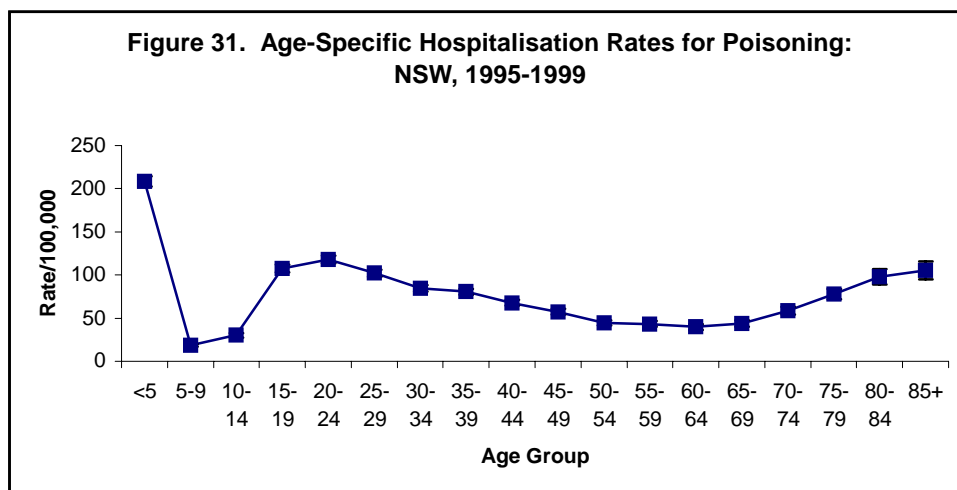
Cell size less than five cases

8.2 Hospitalisations due to Poisoning:

The poisoning hospitalisation rate showed a statistically significant decrease between 1992 and 1999. Since 1994, the rate has remained relatively stable, with a very small decrease between 1997 and 1999. (Figure 30). Between 1995 and 1999, 24,582 people were hospitalised for a poisonings, at a rate of 80.0 people /100,000 and 50 percent were male (Table 6).

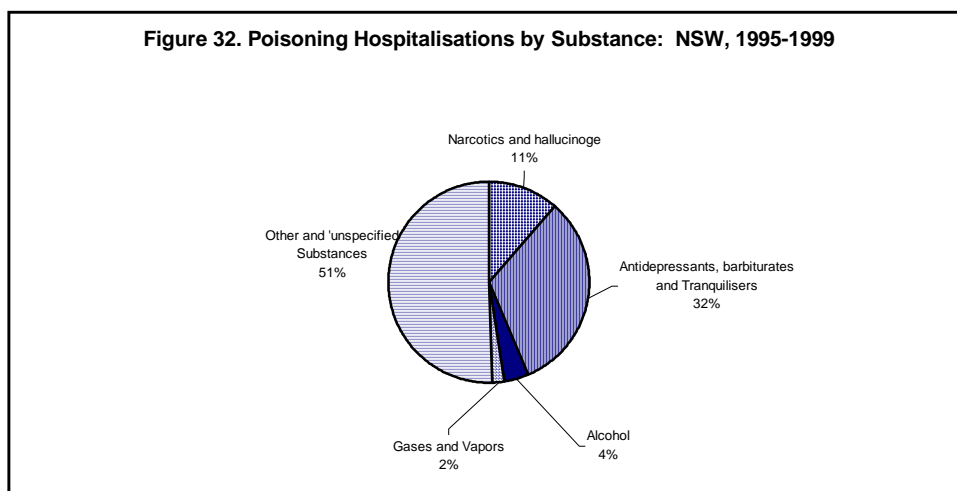


Of the 24,582 poisoning hospitalisations in NSW between 1995 and 1999, approximately 30 percent of these cases were between 15 and 29 years of age, 19 percent were under five years of age and 11 percent were above 65 years of age. Figure 31 illustrates the age-specific hospitalisation rates for poisonings.



People under age five were at greatest risk of being hospitalised as a result of a poisoning between 1995 and 1999. Smaller peaks were also seen for 15 to 35 year olds and for over 75 year olds. Males and females were hospitalised for poisoning at equivalent rates.

The following chart (see Figure 32) shows the percentage of poisoning hospitalisations for various substances.



For most cases of poisoning that were hospitalised, the substance used was coded as other and unspecified. . Further analysis of the data showed that these unspecified cases accounted for eight percent of all poisoning hospitalisations. For hospitalised cases where the substance used was known, the most common cause was antidepressants, barbiturates and tranquilisers, followed by narcotics and hallucinogens.

Table 21. Number of Poisoning Hospitalisations and Hospitalisation Rates/100,000* by Type of Substance: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Other and Unspecified Substances	12,425	40.3	5,950	38.9	6,475	41.9
Antidepressants, Barbiturates and Tranquilisers	7,948	25.7	3587	23.4	4,361	28.1
Narcotics and Hallucinogens	2,795	9.3	1,862	12.4	933	6.2
Alcohol	900	3.0	529	3.5	371	2.5
Gases and Vapors	514	1.6	371	2.4	143	0.9

*Hospitalisation rates have been age-adjusted using the 1991 Australian census population

Table 21 shows the number of poisoning hospitalisations and hospitalisation rates by the substance used for all persons, males and females from 1995 to 1999. Females accounted for 55 percent of all cases hospitalised for poisoning by antidepressants, barbiturates and tranquilisers. Males were hospitalised more often than females for narcotics and hallucinogens poisoning.

Table 22 shows poisoning hospitalisations by age group and type of substance used in NSW for 1995-1999. Antidepressants, barbiturates and tranquilisers and Other and unspecified substances were the main types of substances accounting for hospitalisations for poisoning across all age groups. Antidepressants, barbiturates and tranquilisers were the leading cause of poisoning hospitalisation in adults aged 25-54 years. The largest group of hospitalised poisonings for the younger (under 25 year olds) and older age groups (over 55 year olds) involved a range of substances and was coded as Other and unspecified substances.

Table 22. Poisoning Hospitalisations by Age Group and Substance Used: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Other and unspecified 330	Other and unspecified 3,290	Other and unspecified 281	Other and unspecified 359	Other and unspecified 2,038	Antidepressants, barbiturates and Tranquilisers 1,851	Antidepressants, barbiturates and Tranquilisers 1,603	Antidepressants, barbiturates and Tranquilisers 906	Other and unspecified 614	Other and unspecified 1,825	Other and unspecified 12,425
2	Antidepressants, barbiturates and Tranquilisers 25	Antidepressants, barbiturates and Tranquilisers 710	Antidepressants, barbiturates and Tranquilisers 94	Antidepressants, barbiturates and Tranquilisers 143	Antidepressants, barbiturates and Tranquilisers 1,644	Other and unspecified 1,565	Other and unspecified 1,262	Other and unspecified 861	Antidepressants, barbiturates and Tranquilisers 375	Antidepressants, barbiturates and Tranquilisers 597	Antidepressants, barbiturates and Tranquilisers 7,948
3	Narcotics and hallucinogens 19	Narcotics and hallucinogens 109	Gases and Vapors 14	Alcohol 85	Narcotics and hallucinogens 925	Narcotics and hallucinogens 857	Narcotics and hallucinogens 461	Narcotics and hallucinogens 151	Narcotics and hallucinogens 67	Narcotics and hallucinogens 160	Narcotics and hallucinogens 2,795
4	Gases and Vapors 12	Alcohol 31	Alcohol 13	Narcotics and hallucinogens 39	Alcohol 295	Alcohol 150	Alcohol 148	Alcohol 84	Alcohol 45	Alcohol 46	Alcohol 900
5		Gases and Vapors 24	Narcotics and hallucinogens 7	Gases and Vapors 29	Gases and Vapors 94	Gases and Vapors 89	Gases and Vapors 104	Gases and Vapors 67	Gases and Vapors 40	Gases and Vapors 41	Gases and Vapors 514

Cell size less than five cases

8.3 Summary

The increase in poisoning death rates in 1998 and 1999 signal cause for concern. The same increase was not seen for hospitalisation rates which have actually decreased slightly since 1997. Poisoning deaths were three times more likely for males than females, with people in the 20 to 49 years age range with rates several times higher than other age groups. Male poisoning deaths were around five times more likely to involve narcotics and hallucinogens than other types of substances. Narcotics and hallucinogens were also more likely to be responsible for poisoning deaths for 15 to 44 year olds.

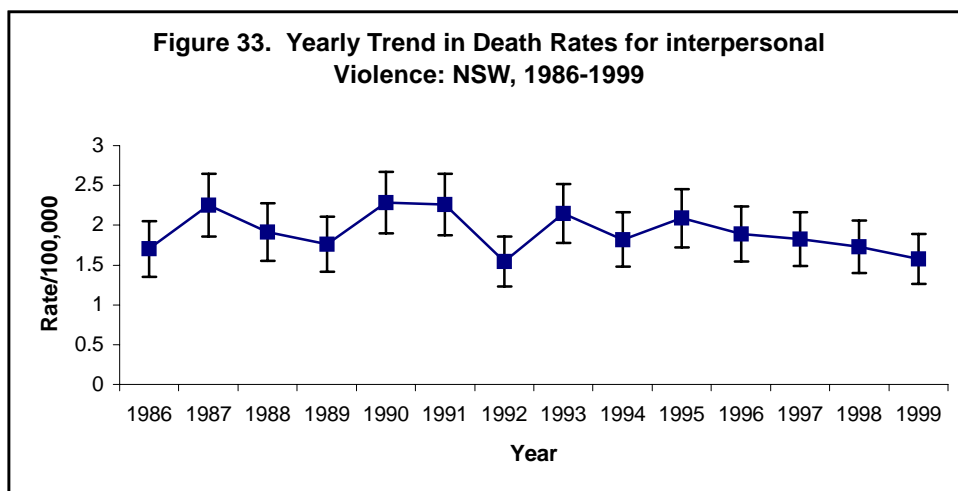
In contrast, hospitalised poisonings were most likely to involve children under five years of age, although 15 to 49 year olds had elevated rates as did over 75 year olds. Hospitalised poisonings were also much more likely to involve antidepressants, tranquilisers and barbiturates than other substances. There was very little difference between males and females except for the small percentage of hospitalisations for narcotics and hallucinogens who were again about twice as likely to be male.

The coding of the substance causing the poisoning is clearly a problem for analysis, especially for deaths where around half were coded as other and unspecified. This problem needs further attention as more information on the substances involved in unintentional poisoning is important for understanding the circumstances in which poisonings occur.

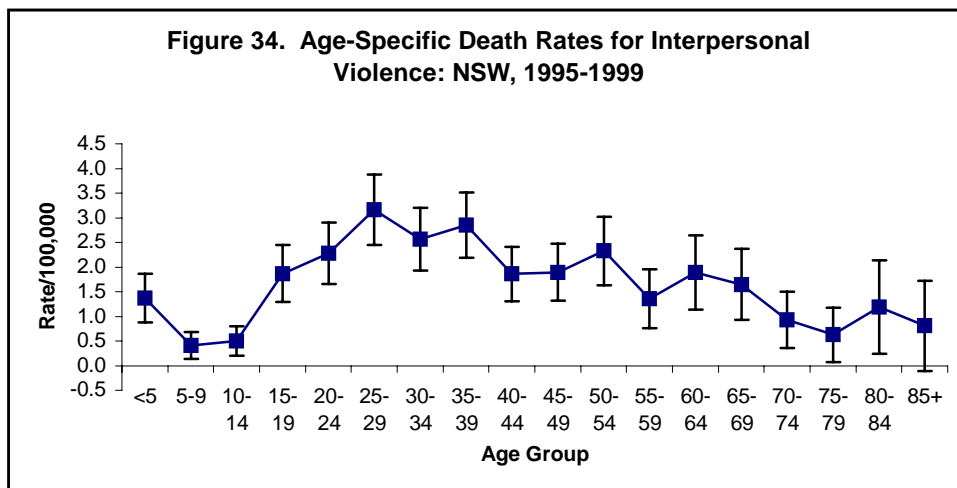
9.0 INTERPERSONAL VIOLENCE

9.1 Deaths due to Interpersonal Violence:

The interpersonal violence (IPV) death rate fluctuated from 1986 to 1995, but there is some evidence of a steady decrease from 1995 to 1999 (Figure 33). Between 1995 and 1999, 566 people died from IPV, at a rate of 1.8 people /100,000 and 71 percent were male (Table 4).



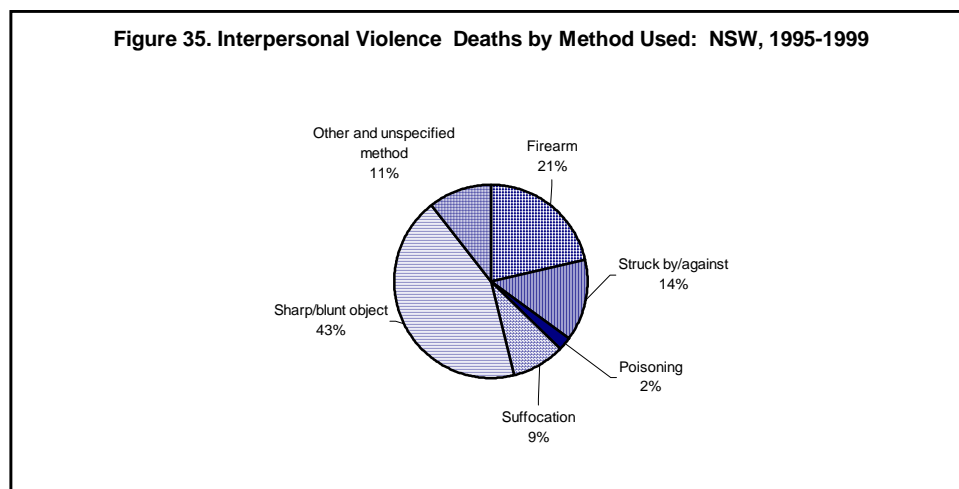
Of the 566 IPV deaths in NSW between 1995 and 1999, approximately 46 percent were



between 20 and 39 years of age. Figure 34 illustrates the age-specific death rates for IPV.

People aged 25-29 were at greatest risk of dying from an IPV injury between 1995 and 1999, but the rates were relatively high for all age groups between 20 and 65. Children under five also showed an elevated risk compared to 5 to 14 year olds who showed the lowest rates of all. Males were 1.5 times more likely than females to die as the result of IPV.

The following chart (Figure 35) shows the percentage of deaths for various methods of IPV.



Sharp/blunt objects used to cut and/or stab (43 %) were the most common methods of IPV between 1995 and 1999, followed by firearms (21 %) and being struck by or against an object (14 %). Approximately 11 percent involved methods that were either unspecified or classified as other types. Use of fire/flames accounted for roughly one-third of these cases.

Table 23. Number of IPV Deaths and Death Rates/100,000* by Method Used: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Sharp/blunt object	245	0.8	176	1.1	69	0.4
Firearm	121	0.4	98	0.6	23	0.1
Struck by/against	77	0.2	66	0.4	11	0.1
Other and unspecified method	60	0.2	34	0.2	26	0.2
Suffocation	50	0.2	16	0.1	34	0.2
Poisoning	13	0.0	11	0.1	2	0.0

*Death rates have been age-adjusted using the 1991 Australian census population

Table 23 shows the number of IPV deaths and death rates by the method used for all persons, males and females from 1995 to 1999. Males accounted for 72 percent of all IPV deaths caused by sharp/blunt objects from 1995 to 1999. Males also accounted for 81 percent of firearm-related IPV deaths and 85 percent of struck by or against IPV deaths. In contrast, of

the relatively smaller number of suffocation-related IPV deaths, around two-thirds were females.

Table 24 shows IPV deaths by age group and method used in NSW for 1995-1999. Four types of methods accounted for the leading type of IPV for all age groups- (i) sharp/blunt object; (ii) struck by/ against; (iii) suffocation and (iii) other and unspecified method. Use of a sharp/blunt object was the leading cause of IPV deaths in people aged 15 years and older. For children under the age of 15 years there were relatively few deaths due to IPV. Where they occurred they were mainly due to being struck by/against an object or person for children under the age of one year, to suffocation for children aged one to four years and other and unspecified methods were the leading cause of IPV death in children aged five to 14 years.

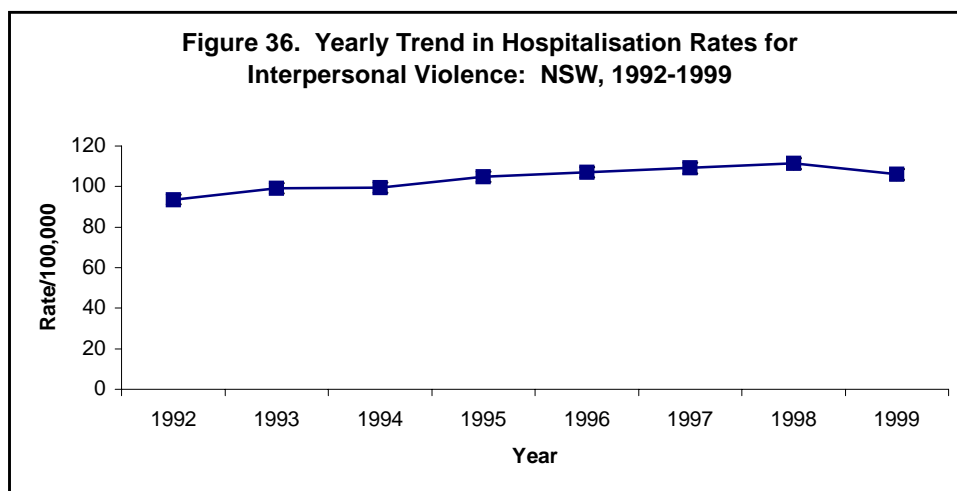
Table 24. IPV Deaths by Age Group and Method Used: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Struck by/against 9	Suffocation 7	Other and unspecified 5	Other and unspecified #	Sharp/blunt object 35	Sharp/blunt object 64	Sharp/blunt object 57	Sharp/blunt object 44	Sharp/blunt object 20	Sharp/blunt object 17	Sharp/blunt object 245
2	Other and unspecified #	Other and unspecified #	Poisoning #	Sharp/blunt object #	Firearm 27	Firearm 34	Firearm 29	Struck by/against 17	Suffocation 8	Firearm 8	Firearm 121
3	Sharp/blunt object #	Struck by/against #	Suffocation #	Poisoning #	Struck by/against 13	Other and unspecified 13	Other and unspecified 10	Firearm 15	Struck by/against 6	Suffocation 7	Struck by/against 77
4		Sharp/blunt object #	Sharp/blunt object #	Struck by/against #	Other and unspecified 8	Struck by/against 12	Struck by/against 10	Other and unspecified 6	Firearm 6	Struck by/against 6	Other and unspecified 60
5		Firearm #		Firearm #	Suffocation 6	Suffocation 11	Suffocation 8	Suffocation #	Other and unspecified #	Other and unspecified 5	Suffocation 50
6		Poisoning #			Poisoning #	Poisoning #			Poisoning #1	Poisoning #	Poisoning 13

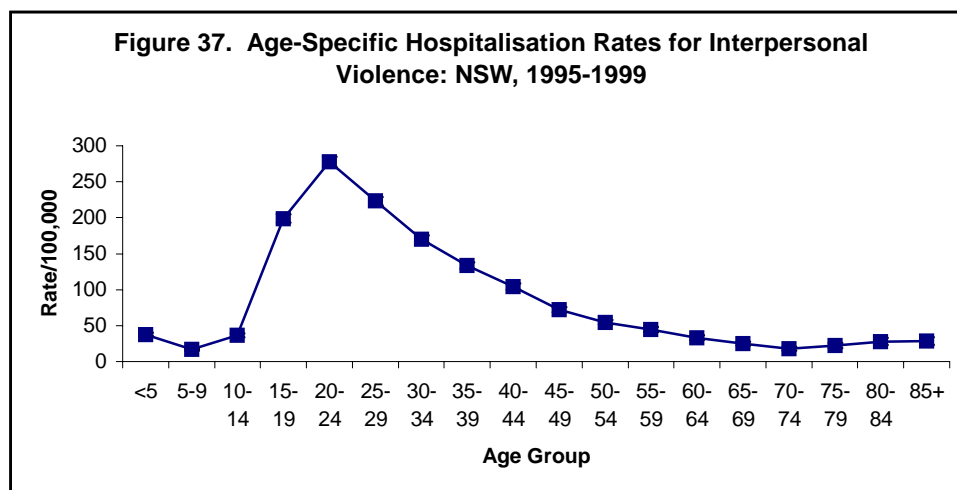
Cell size less than five cases

9.2 Hospitalisations due to Interpersonal Violence:

The interpersonal violence (IPV) hospitalisation rate showed a statistically significant increase from 1992 to 1998 but then decreased significantly from 1998 to 1999 (Figure 36). Between 1995 and 1999, 32,353 people were hospitalised for IPV injuries, at a rate of 107.8 people /100,000 and 77 percent were male (Table 6).



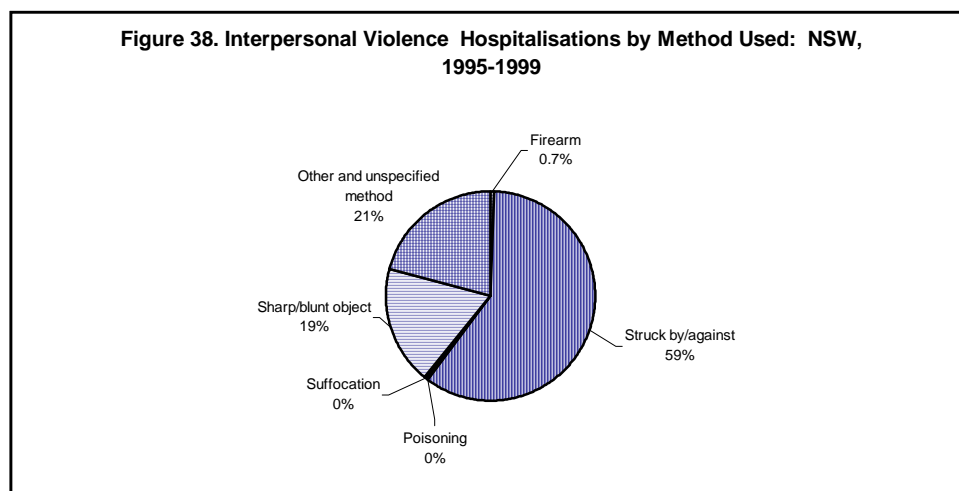
Of the 32,353 IPV hospitalisations in NSW between 1995 and 1999, approximately 36 percent of these cases were between 20 and 29 years of age. Figure 37 illustrates the age-



specific hospitalisation rates for IPV.

People aged 15 to 29 years were at greatest risk of being hospitalised for an IPV injury between 1995 and 1999 with a peak between 20 and 24 years. Males were 2.3 times more likely than females to be hospitalised as the result of IPV.

The following chart (see Figure 38) shows the percentage of hospitalisations for various methods of IPV.



Approximately two-thirds of hospitalisations for IPV were due to being struck by or against another person or object and just under 20 percent involved a sharp/blunt object. For a significant percentage of cases, the method of IPV could not be classified in one of the main categories or was unspecified. Further analysis of these cases showed that unspecified methods accounted for 13 percent of all IPV hospitalisations.

Table 25. Number of IPV Hospitalisations and Hospitalisation Rates/100,000* by Method Used: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Struck by/against	19,304	64.5	14,290	95.1	5,014	33.3
Other and unspecified method	6,701	22.0	5,204	34.3	1,496	9.6
Sharp/blunt object	5,990	20.0	5,098	34.0	892	5.9
Firearm	221	0.7	194	1.3	27	0.2
Poisoning	88	0.3	39	0.3	49	0.3
Suffocation	49	0.2	24	0.2	25	0.2

*Hospitalisation rates have been age-adjusted using the 1991 Australian census population

Table 25 shows the number of IPV hospitalisations and hospitalisation rates by the method used for all persons, males and females from 1995 to 1999. Males accounted for 74 percent of all IPV hospitalisations for being struck by or against another person or object. Males also accounted for 85 percent of injuries by sharp/blunt objects and 88 percent of firearm injuries, whereas females and males were almost equally reflected in IPV hospitalisations for suffocation and poisoning.

Table 26 shows IPV hospitalisations by age group and method used in NSW for 1995-1999. One method, struck by/ against another person or object, accounted for the leading type of IPV hospitalisation for all age groups. Young adults in the 15 to 34 age groups showed by far the highest numbers of hospitalisations due to being struck by or against, although there were very large numbers of 15 to 34 year olds who were hospitalised due to interpersonal injury due to sharp/blunt objects.

Table 26. IPV Hospitalisations by Age Group and Method Used: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Struck by/against 339	Struck by/against 374	Struck by/against 305	Struck by/against 626	Struck by/against 6,530	Struck by/against 5,471	Struck by/against 3,201	Struck by/against 1,425	Struck by/against 576	Struck by/against 457	Struck by/against 19,304
2	Other and unspecified 40	Other and unspecified 43	Other and unspecified 38	Sharp/blunt object 83	Sharp/blunt object 2,068	Other and unspecified 1,970	Other and unspecified 1,351	Other and unspecified 667	Other and unspecified 318	Other and unspecified 322	Other and unspecified 6,701
3	Sharp/blunt object 5	Sharp/blunt object 12	Sharp/blunt object 13	Other and unspecified 74	Other and unspecified 1,878	Sharp/blunt object 1,934	Sharp/blunt object 1,117	Sharp/blunt object 458	Sharp/blunt object 172	Sharp/blunt object 128	Sharp/blunt object 5,990
4	Poisoning #	Poisoning 5	Poisoning 5	Firearm 6	Firearm 80	Firearm 75	Firearm 36	Firearm 14	Firearm 6	Suffocation #	Firearm 221
5	Suffocation #	Firearm #	Firearm #	Poisoning 5	Poisoning 29	Poisoning 15	Poisoning 11	Poisoning 10	Poisoning #	Poisoning #	Poisoning 88
6		Suffocation #	Suffocation #	Suffocation #	Suffocation 12	Suffocation 14	Suffocation 11	Suffocation #	Suffocation #		Suffocation 49

Cell size less than five cases

9.3 Summary

Death rates for IPV have decreased since 1995, whereas hospitalisation rates have increased at a low, but steady rate, mainly between 1992 and 1998, with a small drop in 1999. Death rates showed a peak between 25 to 39 years of age, but were quite variable across all ages. Hospitalisation rates, in contrast, showed a clear peak in 20 to 24 year olds but were elevated for the whole age range between 15 and 45 years.

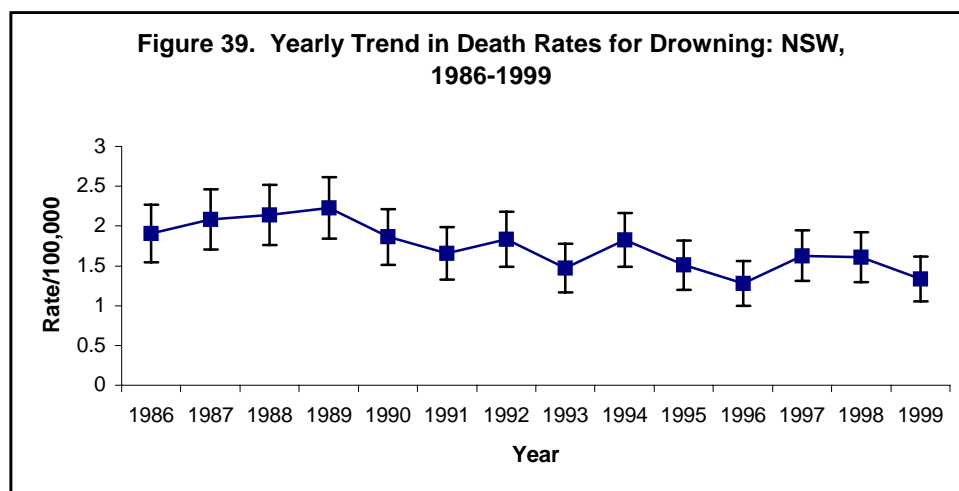
There were very different patterns across different methods of IPV for deaths and hospitalised injuries. Firearms, sharp/blunt objects and suffocation were much more common among IPV-related deaths, but struck by or against-type injuries were much more highly represented amongst hospitalisations. For around one in five hospitalisations due to IPV, the method was other or unspecified. This was only about half as common for deaths.

IPV injuries mainly involved males for most methods. The main exceptions were hospitalisation and death rates for suffocation and hospitalised IPV injuries due to poisoning, which were higher for females. There were few differences in the types of IPV across age groups for deaths or hospitalisations. The relatively small number of deaths due to IPV in children under 15 years of age were due to a range of methods, but for all other age groups, sharp/blunt objects were responsible for the largest group of IPV deaths. Relatively smaller numbers of deaths were due to firearms and mainly for 15 to 44 year olds. The largest group of IPV hospitalisations by far for all age groups was due to struck by or against a person or object.

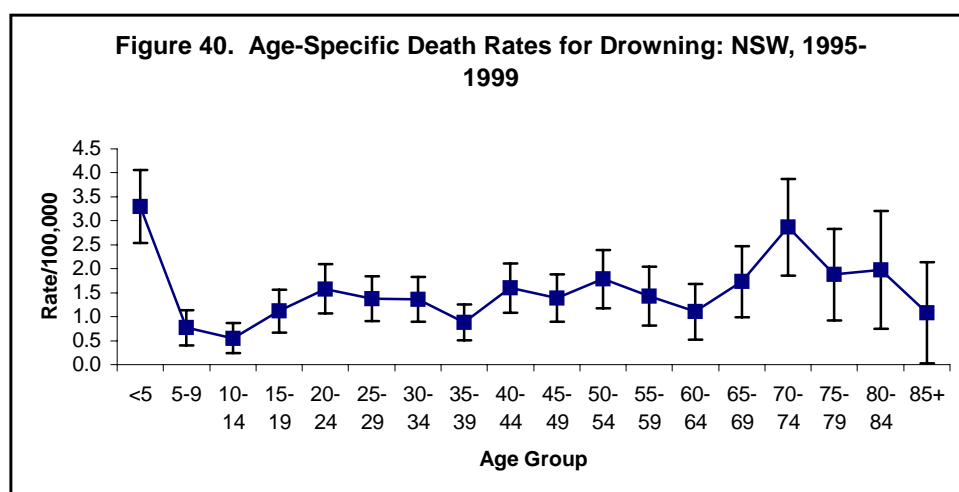
10.0 DROWNING

10.1 Deaths due to Drowning:

The drowning death rate showed a statistically significant decrease between 1989 and 1999 (Figure 39). Between 1995 and 1999, 465 people died from drowning, at a rate of 1.5 people /100,000 and 79 percent were male (Table 4).

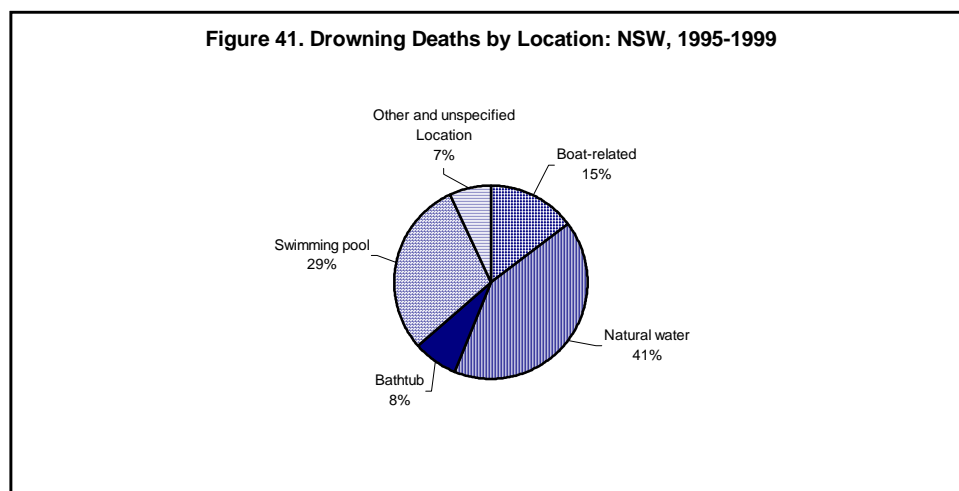


Of the 465 drowning deaths in NSW between 1995 and 1999, approximately 15 percent of cases were under age five. Figure 40 illustrates the age-specific death rates for drowning.



People under age five were at greatest risk of dying as a result of a drowning compared to other age groups, except for 70 to 74 year olds who also showed a higher drowning rate between 1995 and 1999. Males were 2.8 times more likely than females to die as the result of a drowning.

The following chart (See Figure 41) shows the percentage of deaths by various locations of drowning.



The majority of drownings occurred in either natural water (41 %) or in a swimming pool (29 %). The location of the drowning could not be coded in only very few cases. .

Table 27. Number of Drowning Deaths and Death Rates/100,000* by Location: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Natural water	192	0.6	163	1.0	29	0.2
Swimming pool	137	0.4	99	0.6	38	0.2
Boat-related	69	0.2	68	0.4	1	0.0
Bathhtub	35	0.1	11	0.1	24	0.2
Other and unspecified Location	32	0.1	25	0.2	7	0.0

*Death rates have been age-adjusted using the 1991 Australian census population

Table 27 shows the number of drowning deaths and death rates by the location of the drowning for all persons, males and females from 1995 to 1999. Males accounted for 85 percent of all drownings occurring in natural water, almost all boat-related deaths and around three-quarters of all swimming pool deaths. Females drowned in bathtubs more than twice as often as males.

Table 28 shows drowning deaths by age group and location in NSW for 1995-1999. Three locations account for the leading place of drowning deaths for all age groups - natural water, bathtub and swimming pool. People aged five to 64 years drowned most often in natural water. For children aged one to four years swimming pools were very clearly the most common location of drowning deaths and they accounted for the largest single group of drownings. People aged 65 years and older also drowned most often in swimming pools, but a significant number also drowned in natural water. Children under age one year drowned most often in bathtubs.

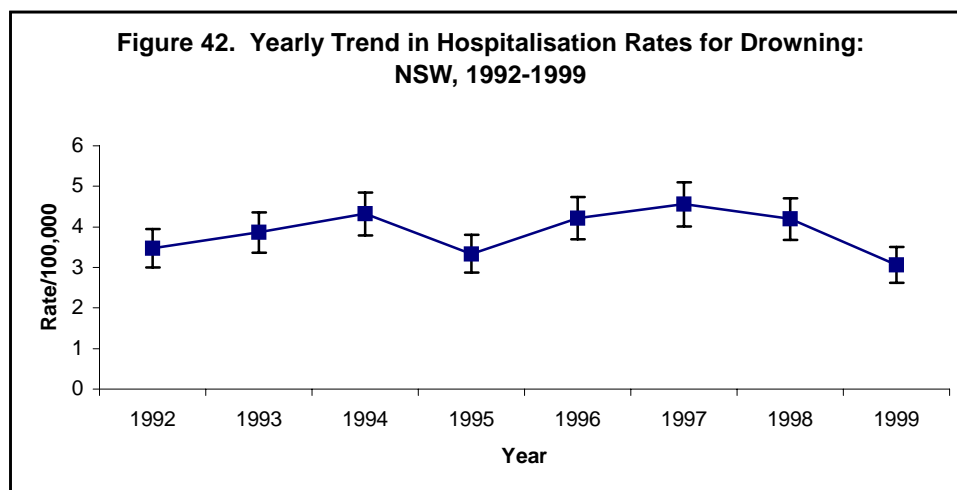
Table 28. Drowning Deaths by Age Group and Location: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Bathtub 10	Swimming pool 42	Natural water 8	Natural water 8	Natural water 35	Natural water 33	Natural water 35	Natural water 30	Natural water 18	Swimming pool 29	Natural water 192
2	Swimming pool #	Bathtub 9	Swimming pool 7	Boat-related #	Swimming pool 14	Boat-related 15	Boat-related 12	Boat-related 15	Swimming pool 9	Natural water 22	Swimming pool 137
3		Other and unspecified 6	Other and unspecified #	Swimming pool #	Boat-related 6	Swimming pool 11	Swimming pool 8	Swimming pool 14	Boat-related 5	Boat-related 13	Boat-related 69
4			Boat-related #	Other and unspecified #	Other and unspecified #	Other and unspecified 5	Other and unspecified #	Other and unspecified #	Bathtub #	Other and unspecified 9	Bathtub 35
5					Bathtub #	Bathtub #	Bathtub #		Other and unspecified #	Bathtub 8	Other and unspecified 32

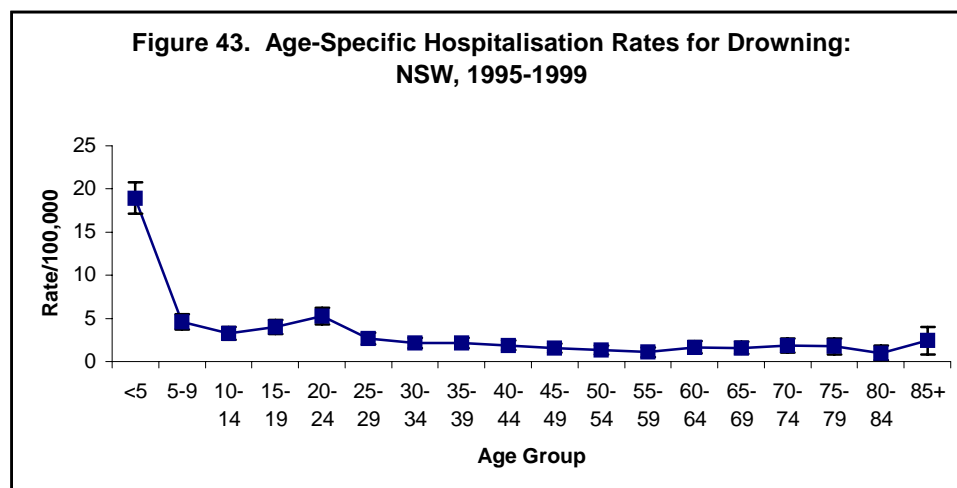
Cell size less than five cases

10.2 Hospitalisations due to Near-Dr owning:

The near-drowning hospitalisation rate showed a statistically significant increase from 1995 to 1997 and then showed a statistically significant decrease from 1997 to 1999 (Figure 42). Between 1995 and 1999, 1,168 people were hospitalised for a near-drowning, at a rate of 3.9 people /100,000 and 68 percent were male (Table 6).



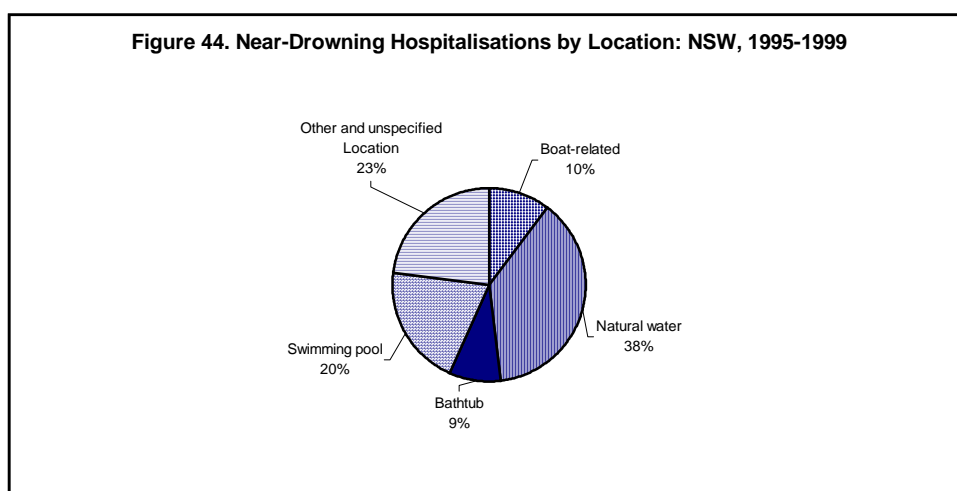
Of the 1,168 drowning hospitalisations in NSW between 1995 and 1999, approximately 35 percent of cases were under age five. Figure 43 illustrates the age-specific hospitalisation



rates for drowning.

People under age five were at greatest risk of being hospitalised as a result of a near drowning between 1995 and 1999. Males were twice as likely as females to be hospitalised as the result of a near drowning.

The following chart (see Figure 44) shows the percentage of hospitalisations by various locations of drowning.



Natural water settings (38 %) and swimming pools (20 %) were the most common locations where near-drowning requiring hospitalisation occurred. For 23 percent of near-drowning cases, the location was classified as other and unspecified. Further analysis showed that the location of approximately five percent of all hear drowning hospitalisations was classified as unspecified.

Table 29. Number of Near-Drowning Hospitalisations and Hospitalisation Rates/100,000* by Location: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Natural water	442	1.5	325	2.2	117	0.8
Other and unspecified Location	269	0.9	174	1.1	95	0.6
Swimming pool	236	0.8	152	1.0	84	0.6
Boat-related	120	0.4	89	0.6	31	0.2
Bathtub	101	0.3	52	0.3	49	0.3

*Hospitalisation rates have been age-adjusted using the 1991 Australian census population

Table 29 shows the number of near-drowning hospitalisations and hospitalisation rates by the location of the near drowning for all persons, males and females from 1995 to 1999. Males accounted for 74 percent of all near-drownings occurring in natural water. Males also accounted for 74 percent of all boat-related near-drownings and 65 percent of all near-drownings occurring in swimming pools. Near-drownings in bathtubs involved males and females in almost equal proportions.

Table 30 shows near-drowning hospitalisations by age group and location in NSW for 1995-1999. Three locations account for the leading place of near-drowning hospitalisations for all age groups - natural water, bathtub and swimming pool. People aged five to 65 years and older were hospitalised most often for a near-drowning in natural water. Children aged one to four years were hospitalised most often for a near-drowning in a swimming pool. Children under age one year were hospitalised most often for a near-drowning in a bathtub. Two clear groups stand out as accounting for the largest number of near-drownings; swimming pools for 1 to 4 year olds and natural water for 15 to 24 year olds. For 25 to 54 year olds, a noteworthy minority of near-drownings was boat-related.

Table 30. Near-Drowning Hospitalisations by Age Group and Location: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Bathtub 59	Swimming pool 135	Natural water 41	Natural water 39	Natural water 136	Natural water 59	Natural water 46	Natural water 29	Natural water 19	Natural water 21	Natural water 442
2	Swimming pool 7	Other and unspecified 126	Swimming pool 29	Other and unspecified 14	Other and unspecified 32	Boat-related 25	Boat-related 28	Boat-related 12	Boat-related 11	Other and unspecified 18	Other and unspecified 269
3	Natural water 5	Natural water 47	Other and unspecified 24	Swimming pool 11	Boat-related 20	Other and unspecified 20	Other and unspecified 14	Other and unspecified 11	Other and unspecified 5	Boat-related 16	Swimming pool 236
4	Other and unspecified 5	Bathtub 29	Bathtub 5	Boat-related 5	Swimming pool 18	Swimming pool 11	Swimming pool 9	Swimming pool 7	Swimming pool 1	Swimming pool 8	Boat-related 120
5		Boat-related #	Boat-related #	Bathtub #		Bathtub #			Bathtub #	Bathtub #	Bathtub 101

Cell size less than five cases

10.3 Summary

Recent trends have been decreasing for both death rates for drowning and hospitalisation rates for near-drowning. The difference between death and hospitalisation rates for drowning-related injury was markedly smaller than for other types of injury, indicating the general severity of drowning injury. Babies and small children were most at risk. Under five year olds had the highest drowning death rates followed by a smaller peak for 70 to 74 year olds. For drowning-related hospitalisations, the only group to stand out was again under five year olds who had around four times the rate of near-drowning as all other age groups.

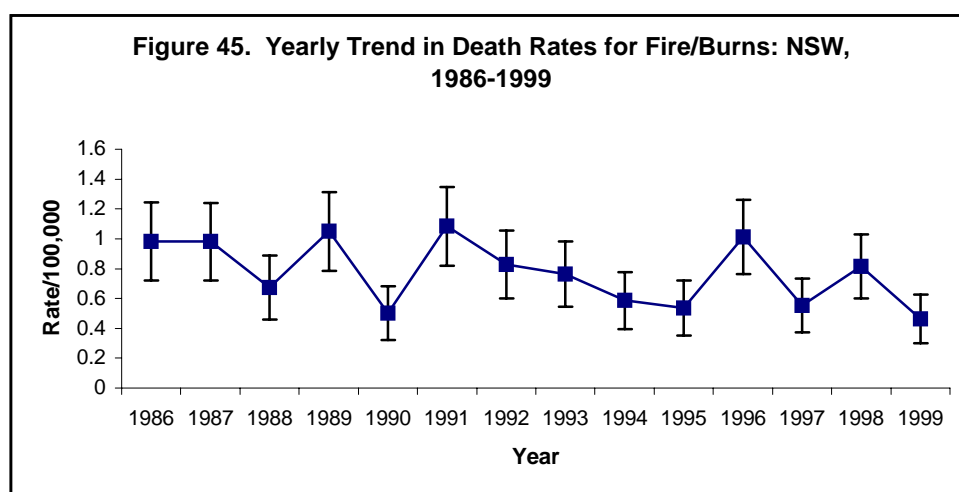
The locations of drowning and near-drowning were very similar. Most drowning and near-drowning occurred in natural water, followed by swimming pools. There was a slightly higher percentage of deaths due to swimming pool and boat-related drowning than hospitalisations for near-drowning. For nearly one-quarter of hospitalisations for near-drowning the location could not be specified, compared to only seven percent for drowning deaths.

Males were involved in around three-quarters or more of all drowning deaths and near-drowning hospitalisations for all types of locations. The only exception was bathtubs where near-drowning was likely to involve either gender and drowning in bathtubs was more likely to involve females, although this may be influenced by the relatively small numbers of drowning deaths. Across age groups there was little difference between the patterns of drowning and near-drowning. One of the few exceptions was the considerably higher number of drownings in swimming pools for over 65 year olds compared to near-drownings which were relatively uncommon in swimming pools.

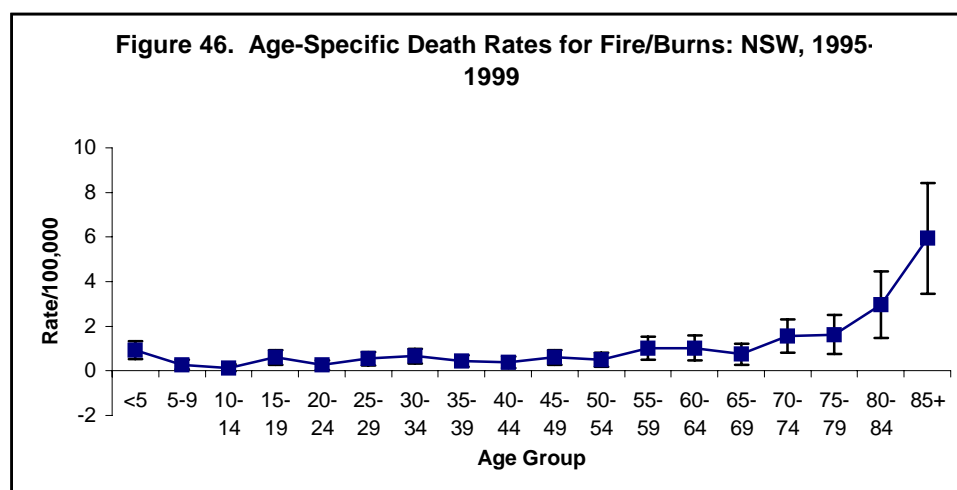
11.0 FIRE/BURNS

11.1 Deaths due to Fire/Burns:

The fire/burns death rate fluctuated considerably between 1986 and 1999, but showed a statistically significant decrease from 1991 to 1999 (Figure 45). Between 1995 and 1999, 223 people died from fires/burns, at a rate of 0.7 people /100,000 and 64 percent were male (Table 4).



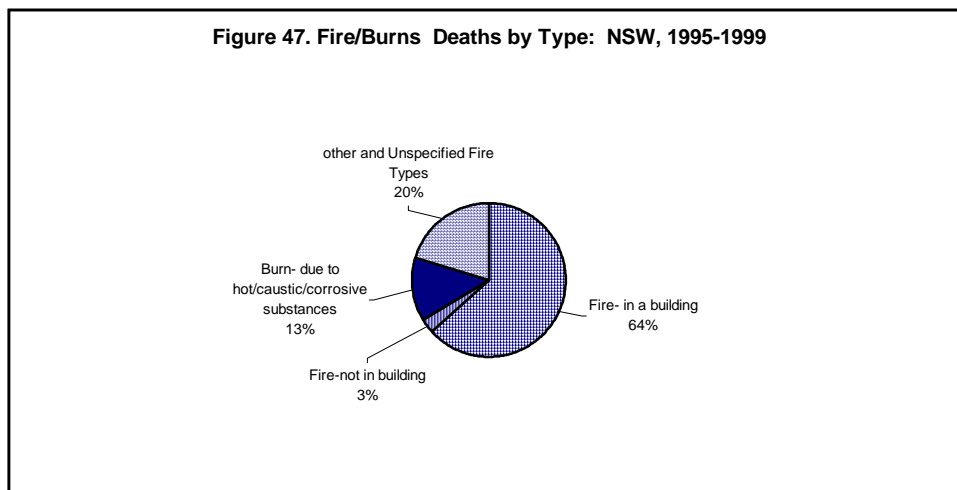
Of the 223 fire/burns deaths in NSW between 1995 and 1999, nine percent of these cases were under five years and ten percent were 85 years of age and older. Figure 46 illustrates



the age-specific death rates for fire/burns.

People aged 70 years and older were at greatest risk of dying as a result of an injury caused by a fire or hot object between 1995 and 1999. The rates for all other age groups were very similar. Young children under five years of age had higher rates than older children between five and fifteen years old.

The following chart (Figure 47) shows the percentage of deaths for various types of fire/burns.



Fires in buildings (64 %) caused the majority of fires/burns deaths. Burns from substances or objects caused an additional 13 percent of the deaths. Approximately 20 percent involved substances that were either unspecified or classified as other types. Further analysis of this category showed that nearly seven percent of all fire/burns cases were classified as an unspecified type and that ignition of clothing accounted for the largest proportion of other fire/burn types.

Table 31. Number of Fire/Burns Deaths and Death Rates/100,000* by Type: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Fire- in a building	141	0.4	87	0.6	54	0.3
Other and Unspecified Types	45	0.1	35	0.2	10	0.0
Burns from Substances	30	0.1	14	0.1	16	0.1
Fire-not in building	7	0.0	6	0.0	1	0.0

*Death rates have been age-adjusted using the 1991 Australian census population

Table 31 shows the number of fire/burns deaths and death rates by the type of fire/burn for all persons, males and females from 1995 to 1999. There was little difference in the types of fire/burns deaths between males and females. Males accounted for 61 percent of fire/burn deaths occurring as a result of fires in buildings. Females accounted for 53 percent of all fire/burn deaths occurring as a result of a burn from a substance.

Table 32 shows fire/burns deaths by age group and type of fire/burn in NSW for 1995-1999. Fires in buildings were the leading cause of fire/burns deaths across all age groups from under age one year to age 65 years and older. Over 65 year olds also had a relatively high number burn-related deaths compared to all other age groups.

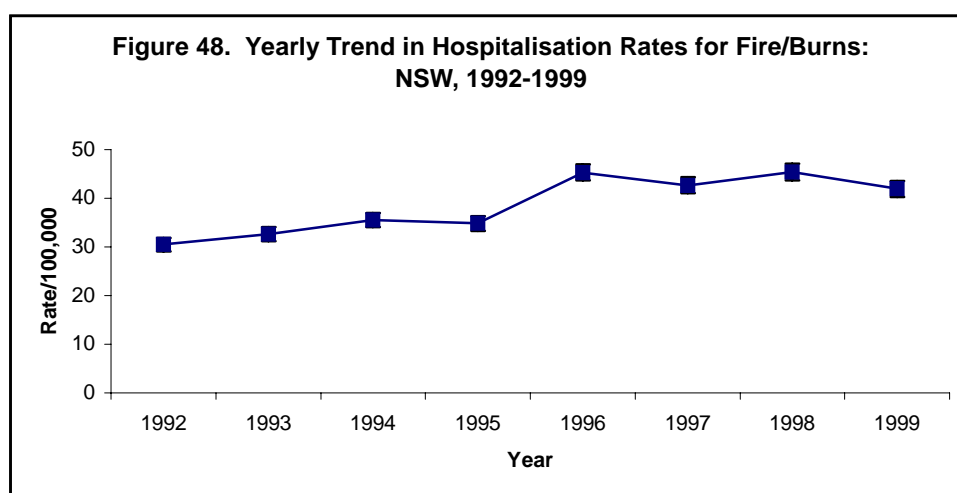
Table 32. Fire/Burns Deaths by Age Group and Type: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Fire- in a building #	Fire- in a building 19	Fire- in a building 6	Fire- in a building #	Fire- in a building 17	Fire- in a building 26	Fire- in a building 12	Fire- in a building 12	Fire- in a building 17	Fire- in a building 29	Fire- in a building 141
2				Other and Unspecified #	Other and Unspecified #	Other and Unspecified #	Other and Unspecified #	Other and Unspecified 8	Other and Unspecified 6	Burn 23	Other and Unspecified 45
3						Burn #	Fire-not in building #	Fire-not in building #	Burn #	Other and Unspecified 22	Burn 30
4							Burn #	Burn #	Fire-not in building #	Fire-not in building #	Fire-not in building 7

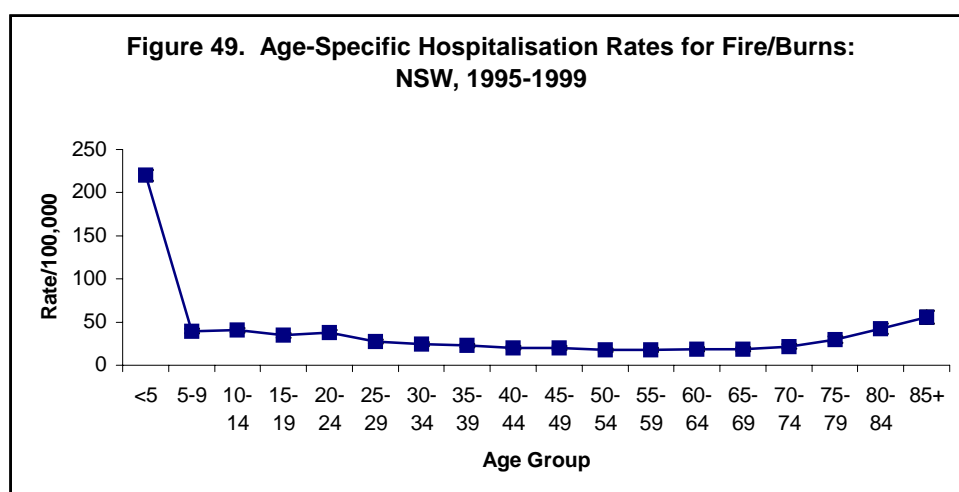
Cell size less than five cases

11.2 Hospitalisations due to Fire/Burns

The fire/burns hospitalisation rate fluctuated between 1995 and 1999, but showed a statistically significant increase overall from 1992 to 1999 (Figure 48). Between 1995 and 1999, 12,838 people died from fires/burns, at a rate of 42 people /100,000 and 63 percent were male (Table 6).



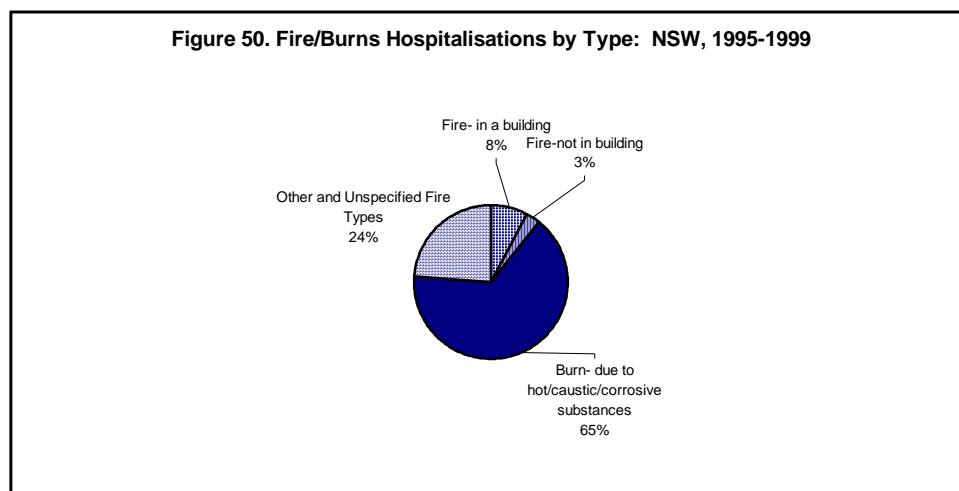
Of the 12,838 fire/burns hospitalisations in NSW between 1995 and 1999, children under five years of age accounted for 38 percent of the fire/burns hospitalisation cases. Figure 49



illustrates the age –specific hospitalisation rates for fire/burns.

Children under five years of age were at greatest risk of being hospitalised as a result of a injury caused by a fire/burn between 1995 and 1999. Males were almost twice as likely as females to be hospitalised as the result of fire/burns injury.

The following chart shows the percentage of hospitalisations for various types of fire/burns (see Figure 50).



Burns from substances or objects caused the greater majority of fire/burns hospitalisations from 1995 to 1999 while fires in a building resulted in a comparatively small percentage of hospitalisations. Approximately 24 percent involved substances that were either unspecified or classified as other types. Further analysis showed that unspecified fire/burns types accounted for almost five percent of all fire/burns hospitalisations.

Table 33. Number of Fire/Burns Hospitalisations and Hospitalisation Rates/100,000* by Type: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Burns from substances	8,383	27.5	4,928	32.2	3,455	22.6
Other and Unspecified Types	3,081	10.1	2,237	14.7	844	5.4
Fire- in a building	994	3.2	613	4.0	381	2.4
Fire-not in building	380	1.2	296	1.9	84	0.5

*Hospitalisation rates have been age-adjusted using the 1991 Australian census population

Table 33 shows the number of fire/burns hospitalisations and hospitalisation rates by the type of fire/burn for all persons, males and females from 1995 to 1999. Males accounted for 59 percent of fire/burn hospitalisations occurring as a result of burn from a substance or object and for 62 percent occurring as a result of fires in buildings.

Table 34 shows fire/ burns hospitalisations by age group and type of fire/ burn in NSW for 1995-1999. Burns were the leading cause of fire/ burns hospitalisations across all age groups from under age one year to age 65 years and older, except for children aged 10-14 years who were hospitalised most often after a fire/ burn of an other or unspecified type. A very clear majority of hospitalisations for burns were in the 1 to 4 years age group.

Table 34. Fire/Burns Hospitalisations by Age Group and Type: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Burns	Burns	Burns	Other and Unspecified	Burns	Burns	Burns	Burns	Burns	Burns	Burns
	808	3,558	524	493	700	601	527	405	284	668	8,383
2	Fire- in a building	Other and Unspecified	Other and Unspecified	Burns	Other and Unspecified	Other and Unspecified	Other and Unspecified	Other and Unspecified	Other and Unspecified	Other and Unspecified	Other and Unspecified
	43	240	261	308	660	441	326	231	143	262	3,081
3	Other and Unspecified	Fire- in a building	Fire- in a building	Fire- in a building	Fire- in a building	Fire- in a building	Fire- in a building	Fire- in a building	Fire- in a building	Fire- in a building	Fire- in a building
	24	116	59	42	150	150	137	77	68	152	994
4		Fire-not in building	Fire-not in building	Fire-not in building	Fire-not in building	Fire-not in building	Fire-not in building	Fire-not in building	Fire-not in building	Fire-not in building	Fire-not in building
		18	26	38	100	61	48	45	9	31	380

Cell size less than five cases

11.3 Summary

The results showed an overall downward trend for fire/burn-related deaths, but an overall tendency to increasing hospitalisation rates for this type of injury. Death and hospitalisation rates differed quite considerably across age groups for fire/burns injury. Elderly people had higher death rates, but under five year olds had higher hospitalisation rates for fire/burns reflecting differences in injury severity and possibly differences in the likelihood of escape or rescue from a fire/burn.

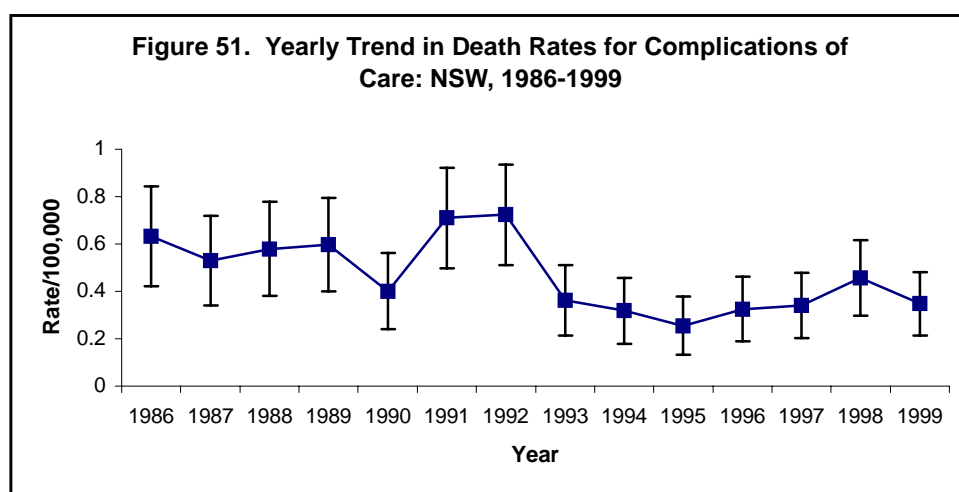
There was also a very different distribution for the types of locations in which the fire/burn incident occurred. These differences probably also reflect different severity of injury resulting from the various types of fire/burns. For example, deaths occurred mainly due to fires in buildings, whereas only a very small percentage of cases were hospitalised for this type of incident. Burns due to hot/caustic/corrosive substances accounted for the majority of hospitalisations, but only a small percentage of deaths. For both deaths and hospitalisations, around one in five cases were classified as other and unspecified type of fire/burns.

Males accounted for a larger proportion of all types of fires/burns than females for both deaths and hospitalisations, except for deaths due to substance burns. Although the number of deaths was small overall, substance burns were roughly equivalent for males and females. There were hardly any differences across age groups in the types of fire/burns for deaths or hospitalisations.

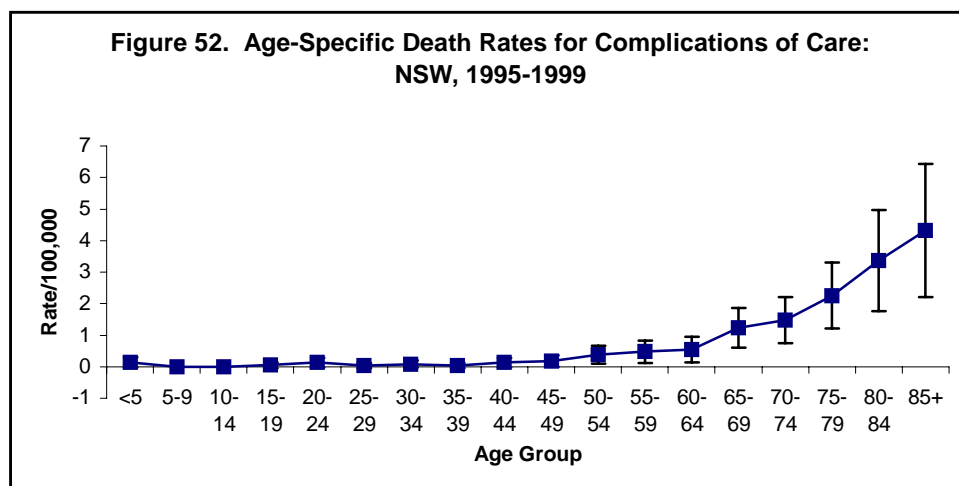
12.0 COMPLICATIONS OF CARE

12.1 Deaths due to Complications of Care

The death rate due to complications of care showed higher rates between 1991 and 1992, a statistically significant decrease from 1992 to 1995 and then relatively stable rates to 1999 (Figure 51). Between 1995 and 1999, 121 people died from complications of care, at a rate of 0.3 people /100,000 (Table 4).



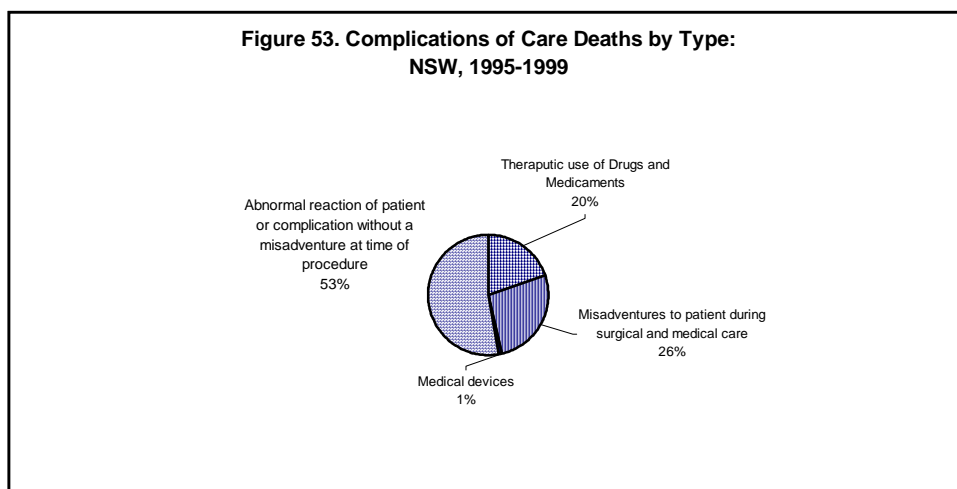
Of the 121 complications of care deaths in NSW between 1995 and 1999, 67 percent of these cases were 65 years of age and older. Figure 52 illustrates the age –specific death rates for



complications of care.

People aged 65 years and older were at greatest risk of dying as a result of an injury caused by a complication of care between 1995 and 1999.

The following chart (see Figure 53) shows the percentage of deaths for various types of complications of care.



Abnormal reaction of the patient or a complication without a mention of a misadventure at time of procedure caused the majority (53 %) of complication of care deaths from 1995 to 1999. Misadventures to the patient during surgical and medical care caused an additional 26 percent of the deaths.

Table 35. Number of Complications of care Deaths and Death Rates/100,000* by Nature of the Complication of care: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Abnormal reaction of patient or complication without a misadventure at time of procedure	64	0.2	34	0.2	30	0.2
Misadventures to patient during surgical and medical care	32	0.1	18	0.1	14	0.1
Therapeutic use of Drugs and Medicaments	24	0.1	7	0.0	17	0.1
Medical devices	1	0.0	0	0.0	1	0.0

*Death rates have been age-adjusted using the 1991 Australian census population

Table 35 shows the number of complications of care deaths and death rates by the nature of the complication of care or all persons, males and females from 1995 to 1999. Males and females were roughly equivalent in the number of complication of care deaths due to an abnormal reaction or a complication. Females accounted for 71 percent of complication of care deaths caused by therapeutic use of drugs and medicaments, although the numbers are quite small.

Table 36 shows complications of care deaths by age group and type of event in NSW for 1995-1999. Two types of complications of care account for the leading causes of complications of care deaths across all age groups - misadventures to patient during surgical and medical care and abnormal reactions of patient or complication without a misadventure at time of procedure. Abnormal reactions or complications were the leading cause of complications of care deaths in people over 45 years of age. Abnormal reactions also accounted for a small number of deaths in 15 to 34 year olds and misadventures accounted for small numbers of deaths in children under age one year and adults aged 35-44 years.

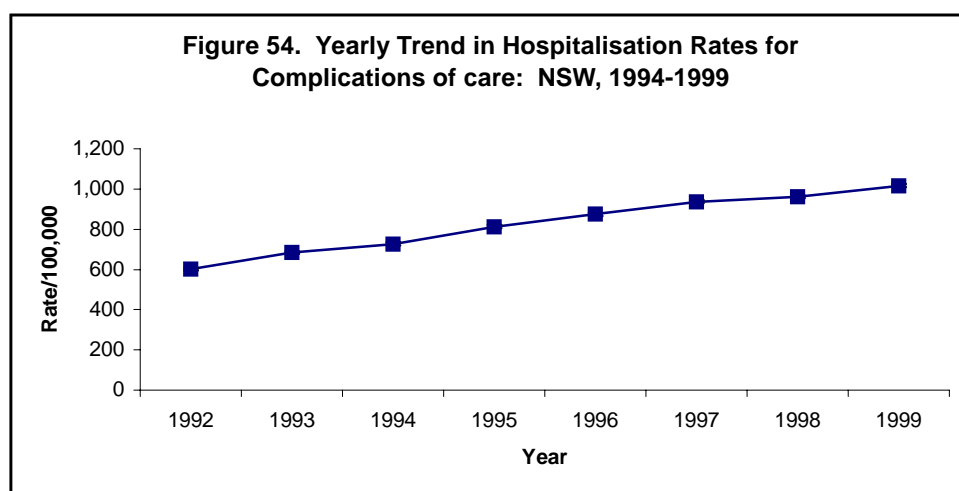
Table 36. Complications of care Deaths by Age Group and Type of Event: NSW, 1995-1999*

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Misadventures to patient during surgical and medical care #				Abnormal reaction of patient or complication without a misadventure at time of procedure #	Abnormal reaction of patient or complication without a misadventure at time of procedure #	Misadventures to patient during surgical and medical care #	Abnormal reaction of patient or complication without a misadventure at time of procedure 6	Abnormal reaction of patient or complication without a misadventure at time of procedure 9	Abnormal reaction of patient or complication without a misadventure at time of procedure 45	Abnormal reaction of patient or complication without a misadventure at time of procedure 64
2					Misadventures to patient during surgical and medical care #	Misadventures to patient during surgical and medical care #	Therapeutic use of Drugs and Medicaments #	Therapeutic use of Drugs and Medicaments #	Therapeutic use of Drugs and Medicaments #	Misadventures to patient during surgical and medical care 20	Misadventures to patient during surgical and medical care 32
3					Therapeutic use of Drugs and Medicaments #			Misadventures to patient during surgical and medical care #	Misadventures to patient during surgical and medical care #	Therapeutic use of Drugs and Medicaments 16	Therapeutic use of Drugs and Medicaments 24
4										Failure of medical device #	Failure of medical device #

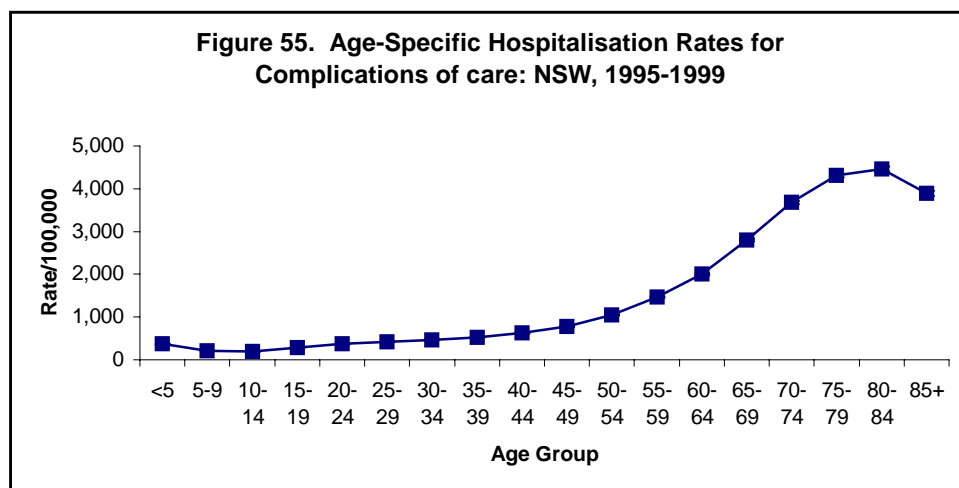
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12.2 Hospitalisations due to Complications of care

The complications of care hospitalisation rate showed a statistically significant increase between 1992 and 1999 (Figure 54). Between 1995 and 1999, 309,102 people were hospitalised as a result of complications of care, at a rate of 922.1 people /100,000 and 51 percent were male (Table 6).



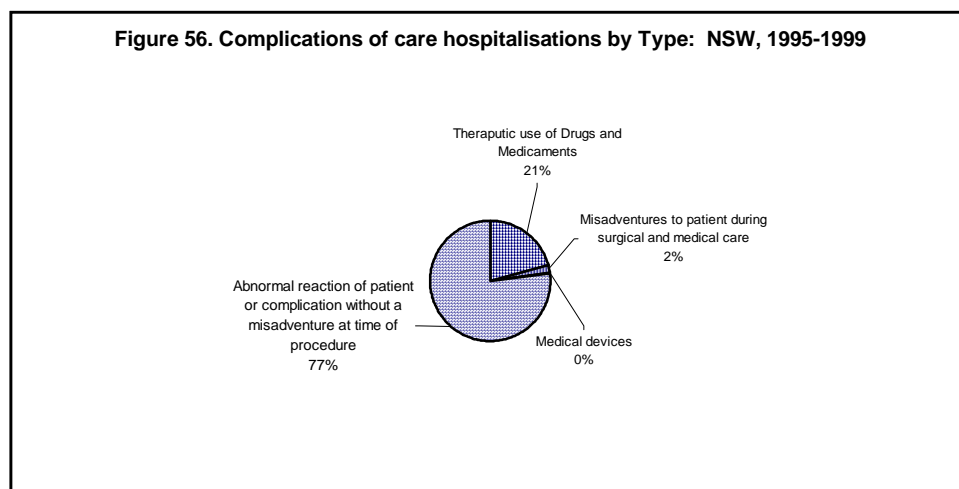
Of the 309,102 complications of care hospitalisations in NSW between 1995 and 1999, 31 percent of these cases were 65 years of age and older. Figure 55 illustrates the age-specific



hospitalisation rates for complications of care.

People aged 50 years and older were at greatest risk of being hospitalised as a result of an injury caused by a complication of care between 1995 and 1999.

The following chart shows the percentage of hospitalisations for various types of complications of care (see Figure 56).



Abnormal reaction of the patient or a complication without a mention of a misadventure at time of procedure (77 %) caused the majority of complication of care hospitalisations from 1995 to 1999. Therapeutic use of drugs and medicaments caused an additional 21 percent of the hospitalisations. Medical misadventures accounted for only a tiny proportion of all complication of care deaths.

Table 37. Number of Complications of care Hospitalisations and Hospitalisation Rates/100,000* by Nature of the Complication of care: NSW, 1995-1999

Injury Mechanism	Total Number	Rate /100,000	Number of Males	Male Rate /100,000	Number of Females	Female Rate /100,000
Abnormal reaction of patient or complication without a misadventure at time of procedure	237,784	709.3	125,466	801.5	112,311	641.1
Therapeutic use of Drugs and Medicaments	64480	192.3	27755	179.5	36723	205.2
Misadventures to patient during surgical and medical care	6218	18.7	2325	14.8	3893	22.9
Medical Devices	620	1.9	307	2.0	313	1.8

*Hospitalisation rates have been age-adjusted using the 1991 Australian census population

Table 37 shows the number of complication of care hospitalisations and hospitalisation rates by the nature of the complication of care for all persons, males and females from 1995 to 1999. Males had a higher number of complication of care hospitalisations due to an abnormal reaction or a complication, but females were more likely to be hospitalised for a medical misadventure or therapeutic use of drugs and medicaments. Females accounted for 57 percent of complication of care deaths caused by therapeutic use of drugs and medicaments.

Table 38 shows complications of care hospitalisations by age group and type of event in NSW for 1995-1999. Abnormal reactions or complications were the leading cause of complication of care hospitalisation in all age groups from under one year to age 65 years and older. The cases due to abnormal reactions or complications are at least double the next leading cause for all age groups and even more for some age groups. Therapeutic use of drugs and medicaments was the second most common type of complication of medical care for all age groups, but accounted for considerably smaller numbers of cases followed by smaller numbers of medical misadventures. There was a clear increase in the number of cases with increasing age for each type of complication of care, probably reflecting increasing usage of the medical system with age.

Table 38. Complications of care Hospitalisations by Age Group and Type of Event: NSW, 1995-1999

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Abnormal reaction of patient or complication without a misadventure at time of procedure 2,235	Abnormal reaction of patient or complication without a misadventure at time of procedure 3,639	Abnormal reaction of patient or complication without a misadventure at time of procedure 3,327	Abnormal reaction of patient or complication without a misadventure at time of procedure 2,975	Abnormal reaction of patient or complication without a misadventure at time of procedure 10,134	Abnormal reaction of patient or complication without a misadventure at time of procedure 15,830	Abnormal reaction of patient or complication without a misadventure at time of procedure 21,805	Abnormal reaction of patient or complication without a misadventure at time of procedure 28,649	Abnormal reaction of patient or complication without a misadventure at time of procedure 37,527	Abnormal reaction of patient or complication without a misadventure at time of procedure 111,663	Abnormal reaction of patient or complication without a misadventure at time of procedure 237,784
2	Therapeutic use of Drugs and Medicaments 653	Therapeutic use of Drugs and Medicaments 1,369	Therapeutic use of Drugs and Medicaments 1,217	Therapeutic use of Drugs and Medicaments 1,181	Therapeutic use of Drugs and Medicaments 4,233	Therapeutic use of Drugs and Medicaments 4,997	Therapeutic use of Drugs and Medicaments 4,981	Therapeutic use of Drugs and Medicaments 6,665	Therapeutic use of Drugs and Medicaments 8,511	Therapeutic use of Drugs and Medicaments 30,673	Therapeutic use of Drugs and Medicaments 64,480
3	Misadventures to patient during surgical and medical care 150	Misadventures to patient during surgical and medical care 67	Misadventures to patient during surgical and medical care 49	Misadventures to patient during surgical and medical care 57	Misadventures to patient during surgical and medical care 281	Misadventures to patient during surgical and medical care 718	Misadventures to patient during surgical and medical care 766	Misadventures to patient during surgical and medical care 782	Misadventures to patient during surgical and medical care 863	Misadventures to patient during surgical and medical care 2,485	Misadventures to patient during surgical and medical care 6,218
4	Failure of medical device 7	Failure of medical device 9	Failure of medical device 14		Failure of medical device 29	Failure of medical device 50	Failure of medical device 57	Failure of medical device 67	Failure of medical device 82	Failure of medical device 301	Failure of medical device 620

Cell size less than five cases

12.3 Summary

Complications of care are injuries occurring due to complications of medical care. The most striking finding for complications of care was that while death rates were very small, hospitalisation rates were around 50 percent higher than the next most common injury type. Complications of care differ from other injury types in that they can occur before, during and after hospitalisation. Four main categories of complications of care are coded: abnormal reactions to procedures, effects of therapeutic use of drugs and medicines, events due to medical devices and misadventures during medical care.

Case frequencies showed that more than one in four complication of care death was due to medical misadventures and around half were due to abnormal reactions. Hospitalisation rates showed a different pattern. More than three-quarters of hospitalisations were due to abnormal reactions and a very small percentage due to medical misadventures, although they accounted for more than 6,000 cases over the 1995 to 1999 period. Events resulting from therapeutic use of drugs/medicines accounted for around 20 percent for both deaths and hospitalisations.

Complications of care mainly involved people over 65 years of age, although compared to other injury types, there were very high hospitalisation rates for almost all age groups. The differences between ages will probably reflect differences in hospitalisation rates across age in general, although further analysis is needed to confirm this. Unlike most other injury types, the difference between hospitalisation rates between males and females were quite small for all types of complications of care. This may also reflect differences in hospitalisation rates for males and females.

13.0 INJURY MECHANISM COMPARISON BY AGE GROUPS

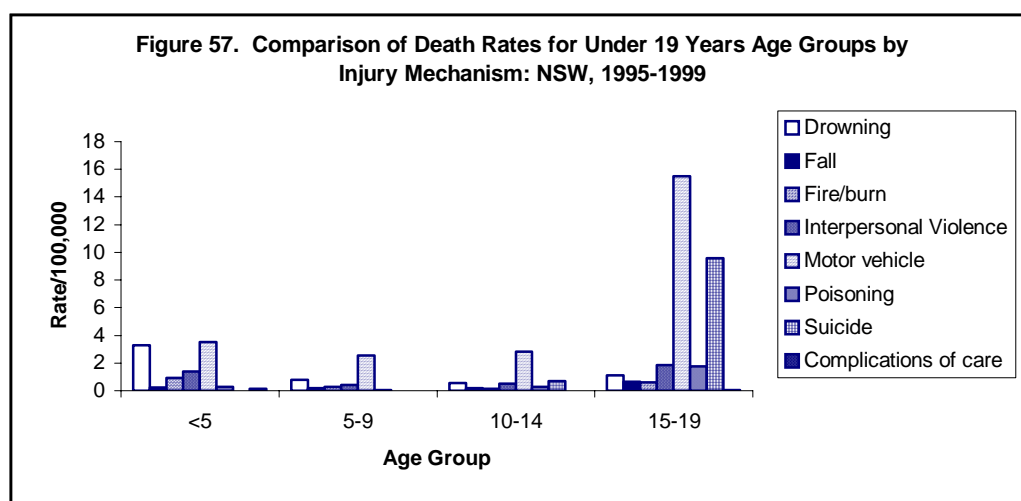
13.1 Introduction

The following sections compare death and hospitalisation rates for various age groups by each injury mechanism. The age groups are broken down into three age-brackets: under age 19 years, aged 20-59 years and aged 60-80+.

13.2 Deaths

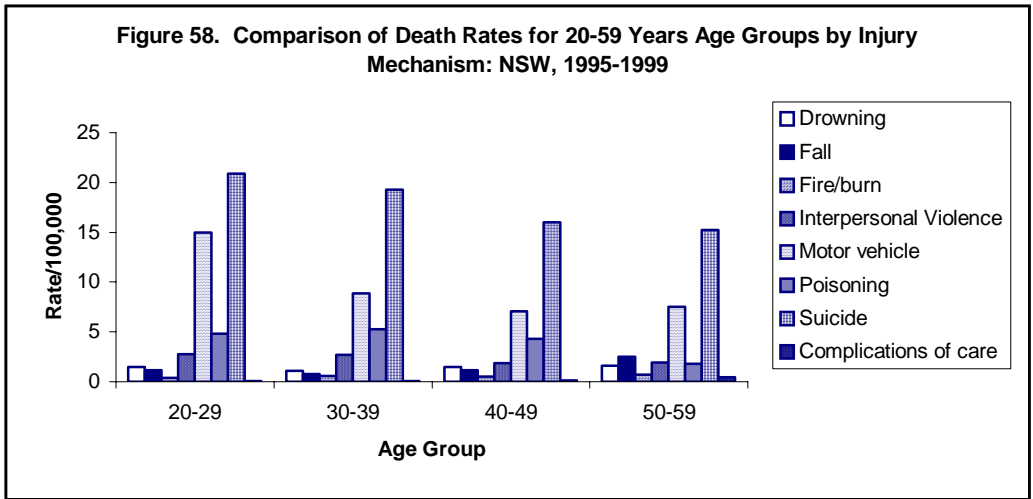
13.2.1 Death Rates for Under 19 Age Groups

Figure 57 shows that motor vehicle transport accidents are the leading cause of injury death in people under age 19. Drowning is the second leading cause of injury death for children under age nine and suicide is the second leading cause of injury death in people aged 10-19.



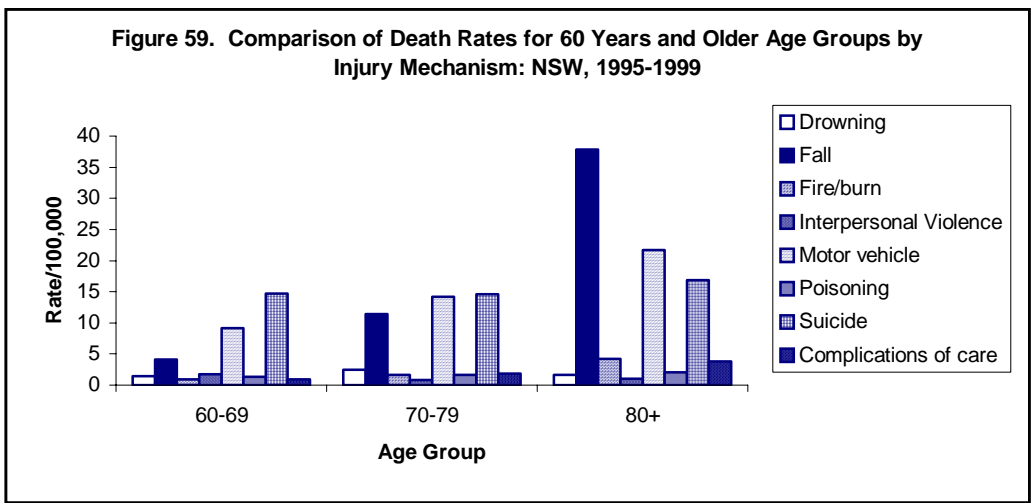
13.2.2 Death Rates for 20-59 Age Groups

Figure 58 shows that suicide is the leading cause of injury death in people aged 20-59 and that motor vehicle transport accidents are the second leading cause of injury death for this age group.



13.2.3 Death Rates for 60 Years and Older Age Groups

Figure 59 shows that suicide is the leading cause of injury death in people aged 60-79 and that falls are the leading cause of injury death in people aged 80 and over. The figure also shows that motor vehicle transport accidents are the second leading cause of injury death for people aged 60 and older.



13.2.4 Top Ten Leading Causes of Injury Deaths by Age Group

Table 39 shows the leading causes of injury deaths by age groups in NSW for 1995-1999. Three injury mechanisms accounted for the leading causes of injury hospitalisation, although they varied by age group. Suffocation was the leading cause among children under age one and motor vehicle transport was the leading cause of injury hospitalisation for children between 1 and 14 years of age and people aged 15-24. Suicide was the leading cause for people 25 years old and older. The number of cases for leading cause of injury hospitalisation for the age groups 5-14 years and 25-54 years differed greatly from the number of cases for the next leading cause.

Table 39. Top Ten Leading Causes of Death by Age Group and Injury Mechanism: NSW, 1995-1999*

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Suffocation 21	Motor vehicle 69	Motor vehicle 56	Motor vehicle 61	Motor vehicle 756	Suicide 986	Suicide 877	Suicide 606	Suicide 390	Suicide 608	Suicide 4,151
2	Drowning 12	Drowning 60	Drowning 17	Suicide 15	Suicide 669	Motor vehicle 507	Motor vehicle 369	Motor vehicle 273	Motor vehicle 242	Fall 604	Motor vehicle 2,915
3	IPV 12	Fire/burn 19	IPV 9	Drowning 12	Poisoning 130	Poisoning 273	Poisoning 239	Poisoning 114	Fall 78	Motor vehicle 574	Fall 901
4	Motor vehicle 8	IPV 18	Fire/burn 6	IPV 11	IPV 92	IPV 138	IPV 114	IPV 84	IPV 44	Suffocation 106	Poisoning 870
5	Poisoning #	Suffocation 13	Suffocation #	Poisoning 6	Drowning 60	Drowning 66	Drowning 59	Fall 72	Poisoning 37	Complications of care 82	IPV 566
6	Fall #	Struck by/Against 5	Fall #	Rail Transport 6	Fall 44	Fall 48	Fall 42	Drowning 63	Drowning 35	Drowning 81	Drowning 465
7	Fire/burn #	Poisoning #	Struck by/Against #	Fall #	Rail Transport 28	Fire/burn 29	Air Transport 23	Fire/burn 22	Fire/burn 28	Fire/burn 76	Suffocation 230
8	Struck by/Against #	Fall #	Poisoning #	Fire/burn #	Fire/burn 19	Rail Transport 20	Machinery 22	Air Transport 21	Suffocation 26	Poisoning 64	Fire/burn 223
9		Machinery #	Machinery #	Struck by/Against #	Suffocation 10	Suffocation 14	Fire/burn 20	Struck by/Against 19	Complications of care 14	IPV 44	Complications of care 121
10		Rail Transport #	Rail Transport #	Suffocation #	Struck by/Against 9	Struck by/Against 13	Suffocation 17	Suffocation 18	Machinery 13	Nat/Env Factors 37	Struck by/Against 90

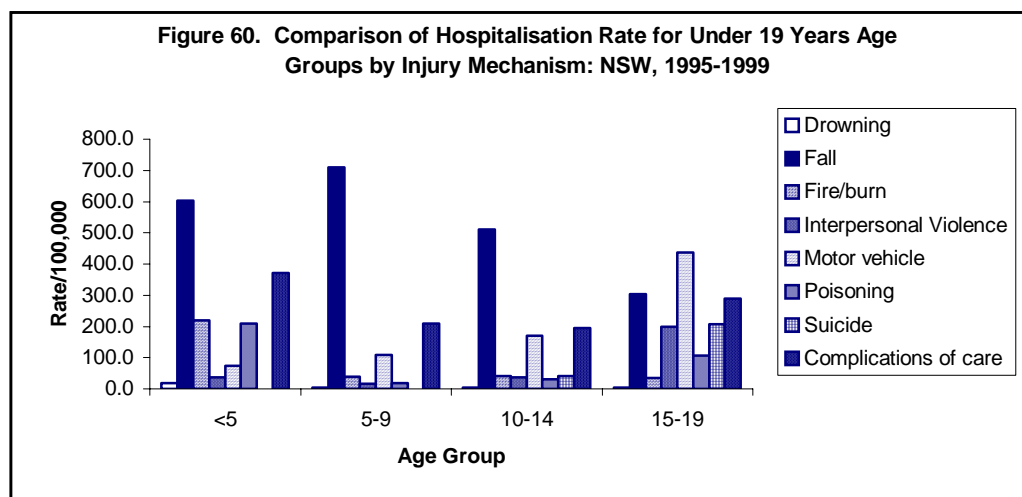
* Injury mechanisms were classified according to recommended Ecode groupings for ICD-9 and ICD-10 from the Centers for Disease Control, USA

Cell size less than five cases

13.3 Hospitalisations

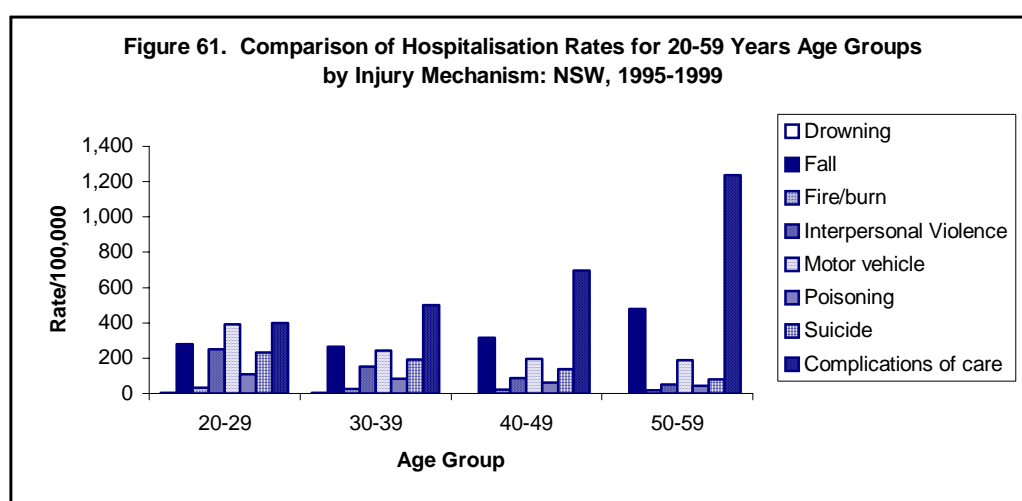
13.3.1 Hospitalisation Rates for Under 19 Age Groups

Figure 60 shows that falls are the leading cause of injury hospitalisation in people under age 14 and that motor vehicle transport accidents are the leading cause of injury hospitalisation in people aged 15-19. Complications of care are the second leading cause of injury hospitalisation for children under age 14 and falls are the second leading cause of injury hospitalisation in people aged 15-19.



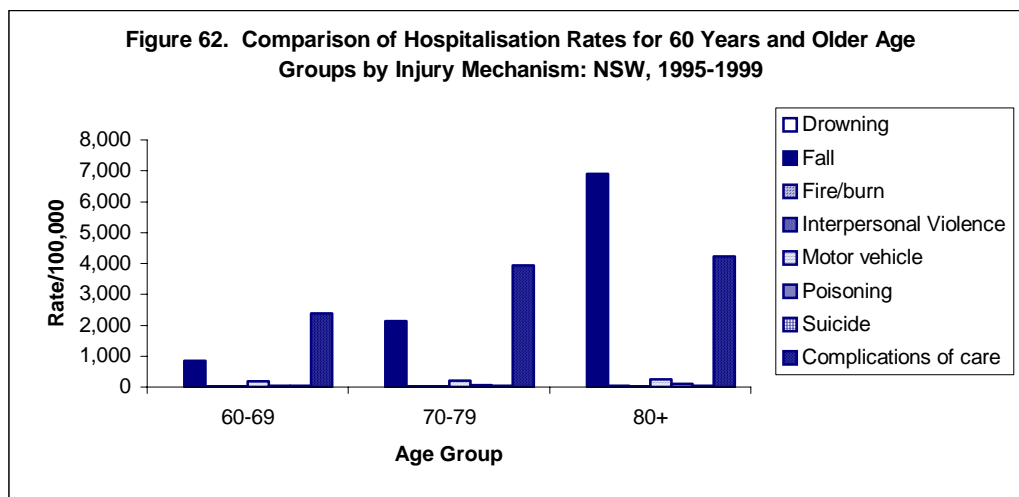
13.3.2 Hospitalisation Rates for 20-59 Age Groups

Figure 61 shows that complications of care are the leading cause of injury hospitalisation in people aged 20-59. The second leading cause of injury hospitalisation is motor vehicle transport accidents for people aged 20-29 and falls for people aged 30-59.



13.3.3 Hospitalisation Rates for 60 Years and Older Age Groups

Figure 59 shows that adverse vents are the leading cause of injury hospitalisation in people aged 60-79 and that falls are the leading cause of injury death in people aged 80 and older. The figure also shows that falls are the second leading cause of injury hospitalisation for people aged 60-79 and that adverse vents are the second leading cause of injury hospitalisation for people aged 80 and older.



13.3.4 Top Ten Leading Causes of Injury Hospitalisations by Age Group

Table 40 shows the leading causes of injury hospitalisation by age groups in NSW for 1995-1999. Three injury mechanisms accounted for the leading causes of injury hospitalisation, although they varied by age group. Complications of care were the leading cause among children under age one and people 25 years old and older. Falls were the leading cause of injury hospitalisation for children between 1 and 14 years of age and motor vehicle transport was the leading cause of injury hospitalisations in people aged 15-24. For most age groups, the leading cause of injury hospitalisation had twice as many cases as the next leading cause.

Table 40. Top Ten Leading Causes of Hospitalisation by Age Group and Injury Mechanism: NSW, 1995-1999*

	<1	1-4	5-9	10-14	15-24	25-34	35-44	45-54	55-64	65+	Total
1	Complications of care 3,045	Fall 11,572	Fall 15,628	Fall 11,128	Motor vehicle 19,656	Complications of care 21,595	Complications of care 27,609	Complications of care 36,163	Complications of care 46,983	Complications of care 145,122	Complications of care 309,102
2	Fall 1,596	Complications of care 5,084	Complications of care 4,607	Complications of care 4,217	Complications of care 14,677	Motor vehicle 14,381	Fall 13,672	Fall 15,139	Fall 17,159	Fall 112,554	Fall 224,141
3	Fire/burn 879	Poisoning 4,164	Motor vehicle 2,391	Motor vehicle 3,707	Fall 12,970	Fall 12,723	Motor vehicle 10,450	Motor vehicle 7,607	Motor vehicle 4,935	Motor vehicle 8,486	Motor vehicle 73,245
4	Poisoning 389	Fire/burn 3,932	Struck by/Against 1,969	Overexertion 2,559	IPV 10,597	Suicide 10,322	Suicide 8,164	Suicide 4,311	Cut/Pierce 2,363	Poisoning 2,669	Suicide 36,617
5	IPV 387	Struck by/Against 1,822	Cut/Pierce 1,826	Struck by/Against 2,424	Suicide 9,871	IPV 9,479	IPV 5,727	Cut/Pierce 3,827	Overexertion 1,673	Cut/Pierce 2314	Cut/Pierce 35,184
6	Suffocation 235	Nat/Env Factors 1,774	Nat/Env Factors 1,253	Cut/Pierce 1,840	Cut/Pierce 8,227	Cut/Pierce 7,530	Cut/Pierce 5,402	Overexertion 3,237	Suicide 1,459	Overexertion 2,287	IPV 32,353
7	Struck by/Against 194	Cut/Pierce 1,751	Fire/burn 870	Nat/Env Factors 1,099	Overexertion 7,199	Overexertion 6,166	Overexertion 4,659	IPV 2,577	Nat/Env Factors 1,264	Struck by/Against 2,136	Overexertion 28,495
8	Motor vehicle 154	Motor vehicle 1,478	Overexertion 586	Suicide 894	Struck by/Against 5,382	Struck by/Against 4,529	Poisoning 3,578	Poisoning 2,069	Struck by/Against 1,223	Nat/Env Factors 2,124	Struck by/Against 24,765
9	Nat/Env Factors 137	IPV 438	Poisoning 409	Fire/burn 881	Poisoning 4,996	Poisoning 4,512	Struck by/Against 3,075	Struck by/Against 2,011	Poisoning 1,141	Suicide 1,575	Poisoning 24,582
10	Cut/Pierce 104	Suffocation 344	IPV 363	IPV 795	Nat/Env Factors 2,040	Nat/Env Factors 2,319	Nat/Env Factors 2,197	Nat/Env Factors 1,848	IPV 1,076	Fire/burn 1,113	Nat/Env Factors 16,055

* Injury mechanisms were classified according to recommended Ecode groupings for ICD-9-CM and ICD-10-AM from the Centers for Disease Control, USA

13.4 Summary

Comparison of death and hospitalisation rates for all injury mechanisms showed similar patterns within specific age groupings. For example, the leading and second leading causes of injury death and hospitalisation were the same for several age groups within each bracket. For example, for children in the 1 to 14 age group, injury deaths mainly occurred due to motor vehicle crashes and injury hospitalisations were due primarily to falls followed by complications of care. For 15 to 64 year olds, injury deaths were mainly due to suicide or motor vehicle crashes. Injury hospitalisations for 15 to 34 year olds were due complications of care or motor vehicle crashes, and for over 34 year olds, hospitalisations for injury were mainly due to complications of care followed by falls. For children under one year of age, different patterns were seen. Injury deaths were mainly due to suffocation followed by considerably smaller numbers of drownings or IPV and injury hospitalisations were due to complications of care or falls.

The similarities between the types of injuries for groups of ages suggests that the situations in which these injuries occur have similar characteristics that put all ages in the bracket at increased risk for some types of injuries and not others. These characteristics may be environmental and/or behavioral in nature, but need to be investigated further to identify areas for possible injury prevention and policy initiatives.

14.0 DISCUSSION

Injuries in man have been occurring since prehistoric times. Many millions of years later, injuries are still occurring, the result of an even greater variety of external causes. Today, injury is one of the leading causes of morbidity and mortality in New South Wales, and, unlike other leading causes of morbidity and mortality, injury has a serious impact on both young and old. Each year, an estimated 2,500 New South Wales residents die as the result of an injury and more than 178,000 are hospitalised. In 1999, injury and poisonings were the sixth leading cause of death and the fourth leading cause of hospitalisation in NSW. Injury was also the leading cause of death among people aged 1-44 years.

The term 'injury' encompasses many different types of injuries (e.g., head injuries, fractures, burns), all of which have an external causal factor, known as the injury mechanism. This profile has analyzed death and hospitalisation cases for eight of the most common injury mechanisms- drowning, falls, fire/burns, interpersonal violence, motor vehicle transport, poisoning, suicide and complications of care. The analysis includes trends in annual death and hospitalisation rates over time, age-specific death and hospitalisation rates and information regarding subcategories for each injury mechanism (e.g., method of suicide).

This profile shows that priorities for injury prevention, control and policy in New South Wales will need to focus on different injury mechanisms, depending on whether death or hospitalisation data is used. If only focusing on deaths due to injury, suicide is clearly the major injury-related cause of death. Motor vehicle-related injury and falls are the second and third most common causes of injury-related death, respectively, but the rates and numbers of deaths are considerably lower than found for suicide. If focussing on injuries requiring hospitalisation, complications of care and fall-related injury are clearly the two most important injury-related causes of hospitalisation. Motor vehicle-related injury is ranked third, but has hospitalisation numbers and rates that are substantially lower than those for complications of care and falls.

Useful information is also available through a comparison of the rates for deaths and hospitalisations for various injury mechanisms. As would be expected, hospitalisation rates were much higher than death rates for all injury mechanisms. The ratio of hospitalisation to death rates varies greatly across different injury mechanisms, however, from more than 2,600 times for complications of care to only 1.6 times for drowning. It seems that complications of care are more likely to produce an injury that is survivable, whereas drowning-related injury is more likely to result in death.

Other information presented in this profile can be also be used to set priorities. If priorities to reduce injury were based on injury mechanisms with steadily increasing trends, then suicide and poisoning deaths would be targeted, as well as hospitalisations for falls, fire/burns, interpersonal violence, motor vehicle transport, attempted suicide and complications of care.

The analyses in the profile also provide different pictures of the at-risk age and gender groups. The at-risk age and gender groups for injury deaths and hospitalisations are similar when all injury mechanisms are considered together, but change significantly when each injury mechanism is analysed separately. Children under the age of five years were at significant risk of death due to drowning and hospitalisation due to near-drowning compared to other age groups. Hospitalisation rates for poisoning and fire/burn-related injury in

children under five were also significantly higher than corresponding rates for all other age groups. Other vulnerable age groups included the following: (i) the 15 to 24 age group who had the highest death and hospitalisation rates for motor vehicle transport injury; (ii) the 20-29 age group who had the highest death and hospitalisation rates for suicide and attempted suicide and the highest hospitalisation rates for interpersonal violence; and (iii) the 70+ age group who had the highest death and hospitalisation rates for falls, motor vehicle transport and complications of care injury.

The involvement of males and females also differs for both deaths and hospitalised injury. Males accounted for nearly three-quarters of all injury-related deaths and had markedly higher numbers and rates for all types of injury-related deaths. Males also show higher hospitalisation numbers and rates for complication of care injury, motor vehicle injury, interpersonal violence, poisoning, fire/burn-related injury and drowning. In contrast, females were hospitalised more often than males for falls and attempted suicides.

It should be pointed out that there are a number of data-related issues associated with this profile that need to be taken into account when interpreting the results and setting priorities. First, the hospitalisations included all cases that were admitted to hospital from 1992 to 1999. This means that the severity of hospitalised injury cannot be accounted for and is likely to be different for different injuries and for different age groups. For example, near-drowning is probably less likely to appear in hospital records than other injury types. Also, it was not possible to account for multiple admissions for the same injury in the hospitalisation data set. While this is likely to be a small factor, its impact is unknown.

In addition, the estimates of risk may not be as good for some injury mechanisms as for others. For example, the opportunity to fall or trip is available almost at any time, so conventional calculation of rates of injury should be as accurate as possible, whereas the opportunity for drowning-related injury occurs mainly when the person has some access to a medium in which a drowning could occur. As this is likely to be an infrequent occurrence for most people, the rates of drowning presented in this profile may significantly underestimate the real risk of drowning. Also, complications of care occur mainly in hospital and show higher rates because this analysis included cases where the principal diagnosis was for a disease or illness and not an injury were also included.

Lastly, the quality of the data available for understanding the circumstances of the injury was limited for many injury mechanisms. For some injury types, such as poisoning, the type of substance involved was unspecified for more than half of the cases. This also limited the usefulness of some of the data reported. Further work is needed to attempt to overcome this problem.

15.0 CONCLUSIONS

The data presented in the profile represent just the tip of the iceberg regarding the assessment of the external cause of injuries and understanding the true impact injuries have on the people of New South Wales. There are scores of injuries seen and treated every day by general practitioners that go unnoticed by the data collection systems in place. In the case of injuries that are captured in current data collection systems (i.e., deaths, hospitalisations, emergency department visits from some hospitals, ambulance service calls), information concerning the events that lead to the injury is often unavailable, resulting in large gaps in the data needed to understand the causes and to develop priorities to prevent and/or control certain types of injury. This lack of knowledge would need to be rectified before any substantial gains in the field of injury prevention and control can be made.

Given the gaps in information, this profile of injury in NSW has provided some insights into the main areas of concern for injury and as such, provides a background for understanding where some of the main problems exist. The profile will be used by the NSW Injury Risk Management Research Centre to further examine patterns of different mechanisms of injury and to enhance a targeted research plan to address the areas of concern and identify the best approaches to solving them.

16.0 RECOMMENDATIONS

This overview of available injury statistics has highlighted a number of areas for further research. These are detailed below:

1. Poisoning-related injury
 - unlike any other injury mechanism, death rates for poisoning have been increasing since 1997. The profile suggests that this increase is most likely to involve males in the 20 to 49 years age group and to involve narcotics and hallucinogens. More research is needed to clarify the reasons for this increase and to use this information to develop more specific approaches to reduce poisoning.
 - children under the age of five years are over-represented in hospitalisations for poisoning. Further research is needed to clarify the types of substances involved and the circumstances in which young children are able to obtain access to them.
 - For more than half of the hospitalisations for poisoning and over one-third of deaths, the substance involved is classified as other or unspecified. This greatly limits the analysis of the causes of poisoning and is clearly an area requiring further examination.

2. Motor vehicle crashes
 - young drivers are clearly at highest risk of injury involving both death and hospitalisation. A clear research need is to develop better understanding of why this age group has such a high representation in motor vehicle crashes. A review conducted by the Centre into the factors involved in young driver-related crashes concluded that inexperience and risk taking behaviours were the most likely factors contributing to the higher crash risk. Further research is needed to examine the relative contributions of these two factors and to assist in developing relevant interventions to overcome them.
 - older drivers also show higher crash risk although they do not represent such a large proportion of the number of motor vehicle crashes. Research is needed to understand the main contributors to this higher risk and to identify those older drivers who may be most at risk.
 - The profile analysis demonstrated that for around one in five hospitalisation for motor vehicle injury the type of person injured could not be specified. Further investigation is needed to clarify the problems of coding these cases.

3. Drowning
 - Drowning is of concern because the risk of drowning is currently almost certainly underestimated by conventional rate estimates such as used in this profile, which do not take potential exposure into account. Furthermore, the review of drowning and near-drowning undertaken by the Centre in October, 2000 for the Australian Water Safety Council concluded that there was a strong link between opportunities for exposure to water and higher risk of drowning. Research is therefore needed to understand the differences in exposure in the community to drowning risks in daily recreational, sporting and occupational activities.
 - children under five years of age have markedly higher drowning and near-drowning rates compared to virtually all other ages. The Centre is currently conducting a study of drowning-related deaths involving under six year olds using coronial records over the period 1995 to 2001. This study is investigating the risk factors for drowning through looking at the wider circumstances in which drowning occurs for this age group. The next stage of this research needs to focus on development of interventions to manage

these risk factors.

4. Fire and burns

- Over 65 year olds had higher death rates whereas under five year olds were more likely to be hospitalised due to fire and burns. Most hospitalisations in this category were due to exposure to hot, caustic or corrosive substances. The reasons for these differences are not well understood, consequently, more in-depth analysis is needed to reveal the specific factors contributing to the risk of fire and the risk of burns for different age groups.

5. Falls

- Falls are a major source of hospitalisation for most age groups, but particularly over 65 year olds and to a lesser extent children between 1 and 15 years of age. Falls in the elderly has attracted considerable attention in recent years, and has tended to overshadow the problems of falls in children. Consequently, research is needed to understand the risk factors for falls in children and to develop better approaches to prevention, which take into account the need for active play, but minimise the risk of injury due to falls.

6. Complications of care

- Complications of health care are relatively less likely to result in death than other injury mechanisms but considerably more likely to result in a stay in hospital or prolong the stay. Much less is known about Complications of care than about most other injury mechanisms discussed in this report. Research is needed which attempts to understand the circumstances in which the different types of complications of care occur. In particular this research needs to look at the environmental, equipment and behavioural factors that led most immediately to the complication occurring and to any pre-existing factors that might have contributed to the event occurring such as organisational, training, supervision, work practice and environmental or workplace design factors. This information can then provide firm foundations for the development of strategies for preventing complications of health care.

7. Studies of overrepresentation of males in most injury mechanisms

- Males dominate the injury death and hospitalisation statistics for most injury mechanisms. Death rates were markedly higher for males for all injury mechanisms reviewed in this report except Complications of care and drowning in bathtubs. The gender difference was not as pronounced for injury-related hospitalisations, although males still had higher hospitalisation rates for IPV, Fire/burns and most types of all other injury mechanisms. This gender difference is usually interpreted as due to the higher exposure to hazards and higher risk taking behaviour in males. Nevertheless, relatively little research has focused on the reasons for higher injury rates in males to confirm this interpretation. As they so clearly dominate the injury statistics, any reductions in injury rates for males would have a great impact on overall injury rates. Consequently, further research is needed to clarify the gender differences in causes of injury in an attempt to uncover new approaches to reducing injury in males.

8. Quality and coverage of injury data

- For a number of injury mechanisms, there are difficulties in coding because of overrepresentation of the use of the other or unspecified codes. Research is needed to determine how much the use of this code is due to poor source information or inadequacies of coding framework and to determine to what extent such problems might be overcome.

- In addition, other population-based sources of morbidity data (e.g., emergency department, ambulance data, general practitioner, consumer products) need to be developed further and analysed to fill in gaps in knowledge regarding the impact injuries have on New South Wales and to see if the same patterns in injuries exist.

17.0 REFERENCES

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MacIntyre CR, Ackland MJ, Chandraraj EJ. Accuracy of ICD-9-CM codes in hospital morbidity data, Victoria: implications for public health research. *Aust NZ J Public Health* 1997; 21: 477-82.

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APPENDICES

APPENDIX 1. LIST OF ECODES BY MECHANISM

Injury Mechanism	Injury Mechanism Subcategory	ICD-9/ICD-9-CM Ecodes	ICD-10/ICD-10-AM Ecodes			
Drowning	<ul style="list-style-type: none"> • Boat-related • Natural water • Bathtub • Pools • Other and unspecified location 	E830, E832, E910 E830.0-.9, E832.0-.9 E910.0-E910.3 E910.4 E910.8 All remaining Drowning Ecodes	V90, V92, W65-W74 V90.0-.9, V92.0-.9 W69, W70 W65, W66 W67, W68 All remaining Drowning Ecodes			
	Fall	<ul style="list-style-type: none"> • Same level, due to tripping • One level to another • Ladder or scaffolding • Building or other structure • Stairs/steps • Other and unspecified type 	E880-E886, E888, E929.3 E885, E886 E884.0-E884.9 E881.0-E881.1 E882 E880.0-E880.9 All remaining Falls Ecodes	W00-W19 W01, W03 W05-W09,W14,W15,W17 W11, W12 W13 W10 All remaining Falls Ecodes		
		Fire/Burns	<ul style="list-style-type: none"> • Fire-in a building • Fire-not in a building • Burn-hot/caustic/corrosive substances • Other and unspecified type 	E890-E899, E924, E929.4 E890.0-E890.9, E891.0-E891.9, E895, E896 E892, E897 E924.0 -E924.9 All remaining Fire/Burn Ecodes	X00-X19 X00, X02 X01, X03 X10-X19 All remaining Fire/Burn Ecodes	
			Interpersonal Violence (IPV)	<ul style="list-style-type: none"> • Firearm • Bodily force • Poisoning • Suffocation • Sharp or blunt object • Other and unspecified means 	E960-E969 E965.0-E965.4 E960.0- E960.9, E967 E962.0-E962.9 E963 E966, E968.2 All remaining IPV Ecodes	X85 - Y09, Y87.1 X93-X95 Y04-Y05, Y07 X85, X87-X90 X91 X99, Y00 All remaining IPV Ecodes
				Motor Vehicle		E810-E825, E929.0
<ul style="list-style-type: none"> • Motorcyclist • Pedal Cyclist • Pedestrian • MV Occupant 					E810-E825 (.2, .3) E810-E825 (.6) E810-E825 (.7) E810-E825 (.1)	V20-V29 V12-V14, V19.0-V19.6 V02-V04, V09 (not .9) V30-V78 (.1, .6) (except

APPENDICES

Injury Mechanism	Injury Mechanism Subcategory	ICD-9/ICD-9-CM Ecodes	ICD-10/ICD-10-AM Ecodes
	<ul style="list-style-type: none"> • MV Driver • Other and unspecified person 	<p>E810-E825 (.0)</p> <p>All remaining MV Ecodes</p>	<p>V39, V49, V59, V69 and V79 which were (.1 and .5)), V83.1, V84-V86 (.1, .6), V30-V78 (.0, .5) (except V39, V49, V59, V69 and V79 which were (.0 and .4)), V83.0, V84-V86 (.0, .5), All remaining MV Ecodes</p>
Poisoning	<ul style="list-style-type: none"> • Narcotics and hallucinogens • Antidepressants, barbiturates, tranquilisers • Alcohol • Gases and Vapors • Other and unspecified drug or substance 	<p>17.1.1.1.1 E850-E869, E929.2</p> <p>E850.0- E850.2, E854.1</p> <p>E851-E855.0 (but not E854.1)</p> <p>E860</p> <p>E867-E869</p> <p>All remaining Poisoning Ecodes</p>	<p>X40 -X49</p> <p>X42</p> <p>X41</p> <p>X45</p> <p>X47</p> <p>All remaining Poisoning Ecodes</p>
Suicide	<ul style="list-style-type: none"> • Firearm • Poisoning- • Suffocation • Drowning • Cutting • Jumping • Other and unspecified means 	<p>E950-E959</p> <p>E955.0-E955.4</p> <p>E950-E952.9</p> <p>E953.0-.9</p> <p>E954.0-.9</p> <p>E956</p> <p>E957.0-.9, E958.0</p> <p>All remaining Suicide Ecodes</p>	<p>X60- X84, Y87.0</p> <p>X72-X74</p> <p>X60-X69</p> <p>X70</p> <p>X71</p> <p>X78</p> <p>X80, X81</p> <p>All remaining Suicide Ecodes</p>
Complications of care	<ul style="list-style-type: none"> • Drugs, medicaments in therapeutic use • Misadventures to patient during surgery and medical care • Misadventures due to medical devices • Procedures causing abnormal reaction or complication of care after procedure • Unspecified complications of care 	<p>E870-E879, E930-E948</p> <p>E930-E949.9</p> <p>E870-E876.9, but not E874</p> <p>E874</p> <p>E878-E879.9</p> <p>All remaining Complications of care Ecodes</p>	<p>Y40-Y84</p> <p>Y40-Y59.9</p> <p>Y60-Y69.9</p> <p>Y70-Y82.9</p> <p>Y83-Y84.9</p> <p>All remaining Complications of care Ecodes</p>

APPENDICES

APPENDIX 2. LIST OF DISEASE AND INJURY CATEGORIES

Disease or Injury Category	ICD-10/ICD-10-AM Ncode	ICD-10-AM Ecode
Infectious Diseases	A00-B99'	
Cancer	C00-D48'	
Diseases of Blood	D50-D89'	
Endocrine Systems	E00-E90'	
Mental Disorders	F00-F99'	
Nervous System Diseases	G00-G99'	
Disease of Eye and Adnexa	H00-H59	
Disease of Ear and Mastoid Process	H60-H95	
Diseases of Circulatory System	I00-I99	
Respiratory Diseases	J00-J99'	
Digestive Diseases	K00-K93'	
Skin Diseases	L00-L99'	
Musculoskeletal Diseases	M00-M99'	
Genitourinary Disease	N00-N99'	
Pregnancy	O00-O99'	
Perinatal Conditions	P00-P96'	
Congenital Abnormalities	Q00-Q99'	
Ill-defined Conditions	R00-R99'	
Injury and Poisoning	S00-T98	
Injury and Poisoning		V00-Y98

APPENDICES

APPENDIX 3. LIST OF ECODES BY MECHANISM

Injury Mechanism	ICD-9/ICD-9-CM Ecodes	ICD-10/ICD-10-AM Ecodes
Drowning	E830, E832, E910	V90, V92, W65-W74
Fall	E880-E886, E888, E929.3	W00-W19
Fire/Burns	E890-E899, E924, E929.4	X00-X19
Interpersonal Violence (IPV)	E960-E969	X85 - Y09, Y87.1
Motor Vehicle Transport	E810-E825, E929.0	V02-V04, V09 (not .9), V12-V14, V19(.0-.6), V20-V79, V80.3-V80.5, V81.0-V81.1, V82.0-V82.1, V83.0-V83.3, V84-V88, V89 (not .1), Y85.0
Poisoning	E850-E869, E929.2	X40 -X49
Suicide	E950-E959	X60- X84, Y87.0
Complications of care	E870-E879, E930-E948	Y40-Y84
Rail Transport	E800-E807 (.0- .9)	V05, V15, V80.6, V81 (.2-.9)
Water Transport	E831 (.0- .9), E833-E838 (.0- .9)	V91, V93, V94
Air Transport	E840- E845 (.0- .9)	V95-V97
Cut/Pierce	E920 (.0- .9)	W25-W29, W45
Firearm	E922 (.0- .3, .8,.9)	W32-W34
Machinery	E919 (.0-.9)	W24, W30, W31
Natural/ Environmental Factors	E900-E909, E928 (.0-.2)	W42-W43, W53-W64, W92-W99, X20-X39, X51-X57
Overexertion	E927	X50
Struck by/Against	E916-E917.9	W20-W22, W50-W52
Suffocation	E911-E913.9	W75-W84